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National Energy Board

1986-89 Bill
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Annual Report 1986

National Energy Board Profile

The National Energy Board is a federal regulatory tribunal that was created by an Act of Parliament on 2 November 1959. During the past quarter-century, it has played an important role in the development of Canada's energy sector.

The Board's regulatory powers under the National Energy Board Act include the licensing of oil, natural gas, and electricity exports, the certification of interprovincial and international pipelines and designated interprovincial and international power lines, and the setting of tolls and tariffs for oil and gas pipelines under federal jurisdiction.

The Act also requires that the Board keep under review the Canadian supply of all major energy commodities, with emphasis on electricity, oil, natural gas, and the by-products derived from oil and natural gas, as well as the demand for Canadian energy in Canada and in export markets.

The Board also has specific responsibilities under the Northern Pipeline Act and the Energy Administration Act.

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National Energy Board


31 March 1987

The Honourable Marcel Masse, P.C., M.P.
Minister of Energy, Mines and Resources
Ottawa, Ontario

Dear Mr. Masse:

I am pleased to submit the Annual Report of the National Energy Board for the year ending 31 December 1986, in accordance with the provisions of Section 91 of the National Energy Board Act, the Revised Statutes of Canada, 1970, chapter N-6.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'R. Priddle', written in a cursive style.

R. Priddle,
Chairman



Metric Conversion Table

The National Energy Board uses the International System of Units (SI). The energy units most commonly referred to in this report are the gigajoule (GJ) and the petajoule (PJ). A 30-litre gasoline fill-up contains about one gigajoule of energy. A petajoule is one million gigajoules. On average, a city the size of Toronto or Montreal uses a petajoule of energy for all uses (heat, light, transportation, etc.) about every 17 hours.

The following conversion table is provided for the convenience of readers who may be more familiar with the Imperial System.

Approximate Conversion Factor

1 metre (m)	=	3.28 feet
1 kilometre (km)	=	0.62 mile
1 millimetre (mm)	=	0.039 inch
1 cubic metre (m ³) of oil	=	6.3 barrels
1 cubic metre (m ³) of natural gas	=	35.3 cubic feet
1 litre (L)	=	0.22 gallon
1 kilogram (kg)	=	2.20 pounds
1 gigajoule (GJ)	=	0.95 MMBtu, or 0.95 thousand cubic feet (Mcf) of natural gas at 1000 Btu/cf
1 petajoule (PJ)	=	0.95 billion cubic feet of natural gas, or 165 000 barrels of oil, or 0.28 terawatt hours of electricity

Abbreviations

gigajoule (GJ)	=	10 ⁹ J
terajoule (TJ)	=	10 ¹² J
petajoule (PJ)	=	10 ¹⁵ J
exajoule (EJ)	=	10 ¹⁸ J
kilowatt (KW)	=	10 ³ watts
megawatt (MW)	=	10 ³ KW
megawatt hour (MW.h)	=	10 ³ KW.h
gigawatt hour (GW.h)	=	10 ⁶ KW.h
terawatt hour (TW.h)	=	10 ⁹ KW.h

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The Chairman's Letter

The National Energy Board is an organization of energy professionals responsible, under the law, for providing energy regulation and advice.

Its nine present members have professional backgrounds in accounting, economics, engineering, geology and law. Their previous experience is in the oil, gas and electrical industries, university, business boards, provincial and federal governments.

The Board's permanent staff, numbering about 400, spans the full range of disciplines needed for the proper conduct of the business of the Board. This includes the regulation of certain energy exports and imports; of oil and gas pipelines, including their tolls; and of international power lines. It involves as well the provision of advice to the Minister of Energy, Mines and Resources on matters in which the Board has special competence.

The Board's purpose is to serve the public interest of Canada in the matter of energy. In doing this, it takes account of the general policy environment created by the government of the day. The program of regulatory reform is one element of that environment which is of particular importance to the Board.

The Board does not regulate for regulation's sake. On the contrary, it has been a leader in seeking to regulate less and to regulate more wisely. For example, of the 40 pipelines under the Board's jurisdiction, 30 have been effectively deregulated. The pipelines which remain under the Board's detailed regulation are all major systems having monopoly positions and of vital importance to oil and gas producers and consumers.

Toll regulation of half a dozen of the major pipelines occupies a great deal of Board Members' time and consumes significant staff support. I note that the related public proceedings have become more complex and, therefore, longer and more costly for all concerned. We intend in the coming year to set aside time for a careful review of this problem with the major regulated pipelines, producers and consumers. Our objective will be to find out whether we can together identify and apply means to shorten the oral portions of the Board's toll proceedings, while maintaining effective regulation of these large public utilities.

The Board is preparing its report on the inquiry into the federal regulation of electricity exports, which the Minister of Energy, Mines and Resources asked us to carry out. Part of the background to that request was the government's regulatory reform program. I hope that, as a result of our inquiry, steps can be taken to lighten the regulation of electricity exports while maintaining an appropriate degree of federal government oversight of international trade in this essential energy commodity.

The Board has been pleased to play the key regulatory role in the introduction of market-sensitive pricing in Canadian interprovincial gas trade. Since 1 November 1985, it has issued 41 orders providing for the transportation of gas in arrangements concluded directly between gas producers and gas consumers. A major review of TransCanada PipeLines' availability of services, concluded in June 1986, paved the way for a new approach to toll-setting for that company, which is critical to the effective working of a market-oriented pricing regime for natural

gas in Canada. The decision was subsequently upheld by the Federal Court of Appeal. The Board as well had the satisfaction of seeing its recommendation on the treatment of TOPGAS carrying charges implemented by the Alberta government.

Other matters dealt with by the Board in 1986 included the certification of a major oil pipeline expansion in the prairies; the implementation of a new approach to tolls for Westcoast Transmission Company Limited; and aspects of pipeline safety, which were examined in its reports on two fatal pipeline accidents.

Pursuant to a request of the Minister of Energy, Mines and Resources, the Board is reviewing its procedures for determining the amount of gas which is surplus to reasonably foreseeable requirements for use in Canada and is thus available for export. In undertaking this review, it is conscious of its role as a national board. Full and fair opportunity will be given to all interested parties to express their views and to examine each other's positions. The Board will make its decision on the basis of its responsibility to uphold the national public interest.

The Board is in good heart and ready to continue to dispense relevant regulation in the public interest. There are presently nine members compared to twelve when I came to the chairmanship a year ago. I feel that nine is appropriate to the current and prospective workload. The staff too is being downsized, I believe without impairment to quality and enthusiasm.

Finally, I want to pay tribute to three members who left us during 1986: Mr. Jack Hardie and Mr. Bill Scotland, both of Calgary, Alberta and Mr. Jacques Trudel of Montreal, Quebec. They were all vigorous and effective members of the Board and their contribution will be long remembered and appreciated.



R. Priddle
January 1987

Functions and Responsibilities

Responsibilities Under the National Energy Board Act

The Board has two principal responsibilities under the National Energy Board Act:

- to regulate specific matters concerning oil, gas and electricity in the public interest, and
- to advise the Government on the development and use of energy resources.

The Board has the authority to hold inquiries into any aspect of energy matters under its jurisdiction and to issue reports for the use and information of Government, Parliament, and the general public.

The regulatory roles of the Board are described below.

Regulation of Pipeline Traffic, Tolls, Tariffs, and Accounting Practices

The Board regulates the traffic, tolls and tariffs of pipeline companies under federal jurisdiction to ensure that the tolls are just and reasonable and that there is no unjust discrimination in tariffs or service.

Export Licences and Orders

The Board issues long-term licences for the export of oil, gas, and electricity. Such licences are normally granted following public hearings. In issuing export licences, the Board must satisfy itself that, among other things, the quantities of energy exported do not exceed the surplus remaining after making allowance for reasonably foreseeable Canadian requirements. The Board also issues orders for short-term exports of energy commodities

subject to the restrictions imposed in the National Energy Board Part VI Regulations. In addition, the Board authorizes licences and orders for imports of natural gas.

Certificates of Public Convenience and Necessity for Pipelines and Power Lines

The Board grants certificates to construct and operate interprovincial and international oil, gas, and petroleum products pipelines, as well as international and designated interprovincial electric power lines. Before a certificate is issued, the Board is required to hold a public hearing.

Detailed Routing - Pipelines and Power Lines

Persons whose lands may be affected by the route of a pipeline or power line approved by the Board can present their views to the Board at a local public hearing. Their evidence is considered in the determination of the final detailed route of the line.

Pipeline and Power Line Orders

The Board approves minor pipeline facilities or minor additions to, or modifications of, existing pipeline systems without a public hearing. These approvals are restricted to pipelines not more than 40 kilometres long and to installations such as tanks, pumps, compressors, and meter stations. The Board may also authorize, without a public hearing, the construction and operation of international power lines not exceeding 50 kilovolts.

Pipeline Safety

The Board's Oil and Gas Pipeline Regulations provide for the safe

design, construction, and operation of pipelines under the Board's jurisdiction. To ensure high standards of pipeline construction and operation, the Board carries out inspection programs and conducts investigations of pipeline system performance.

Pipeline Utility Crossing Orders

To enhance public safety, the Board grants prior approval to utilities crossing a pipeline, thereby ensuring design compatibility and reducing the possibility of damage to the pipeline. It also establishes the conditions under which a pipeline may be constructed across an existing utility, thereby ensuring the integrity of other utility services. Construction of a pipeline crossing navigable water or a railway requires permission of the Minister of Transport or the Canadian Transport Commission.

Environmental Protection

The Board considers the environmental implications of any proposal to build and operate an oil or gas pipeline or international power line. Environmental activities include the assessment of applications and, after certification, an auditing of the company's inspection of construction and operation. This ensures that new projects will have minimal adverse effects on fish, wildlife, land-use, environmental health, and safety.

Socio-Economic Impact

The Board monitors socio-economic action plans of pipeline companies, conducts investigations, and reviews performance when warranted. It

has issued guidelines for assessing the regional socio-economic impact of gas or oil pipeline projects.

Responsibilities Under the Energy Administration Act

For many years, the Board had significant responsibilities in administering Parts I, I.1 and III of the Energy Administration Act.

Parts I and I.1 pertained, respectively, to the collection of charges on oil exports and the collection of the Transportation Fuel Compensation Recovery Charge. Although the export charge program ended, in effect, in 1985, and the TFCR Charge in 1983, some activity remains in the area of auditing and refunds.

Part III pertains to the administration of domestic natural gas pricing, specifically the price of gas from a producer province sold within or without that province for use outside that province. Activity under Part III ceased in November 1986, when the government withdrew from interprovincial natural gas pricing. (For further information, refer to *Legislation and Regulations*.)

Responsibilities Under the Northern Pipeline Act

The Board's statutory responsibilities regarding the Canadian portion of the Alaska Natural Gas Transportation System relate mainly to the regulation of tolls and tariffs, the approval of pipe specifications, the granting of leave to open orders, and the regulation of the operation of the line. However, the Board's activities under the Northern Pipeline Act will be negligible until the main project proceeds.

Public Access and Participation

The Board is a Court of Record. With specific exceptions relating to the confidentiality of competitive pricing information, the Board's deliberations are conducted on the basis of publicly filed, publicly available information. For major applications and inquiries, the Board holds public hearings at which applicants and interested persons have full rights of participation in the official language of their choice. To give parties an opportunity to discuss their concerns or questions, the Board provides advance notice of its hearings and allows time for parties to respond to requests for information.

In addition, the Board issues quarterly regulatory agendas on matters coming before the Board as well as information bulletins and press releases on a variety of matters pertaining to Board activities.

Implementation of Board Decisions

When the Board is prepared to grant a certificate for a pipeline or a power line or to issue a licence for the export of natural gas or electricity, the import of natural gas, or the long-term export of oil, it so reports to the Governor in Council through the Minister of Energy, Mines and Resources. If a certificate is approved by the Governor in Council, the certificate is then issued by the Board. In the case of export or import applications, licences issued by the Board go into effect on approval by the Governor in Council. A decision of the Board to

refuse an application is not subject to referral to the Governor in Council. The Board's Reasons for Decision on applications are issued as public documents. The Board's decisions on tolls and tariffs are made without reference to the Governor in Council, as are the majority of the Board's day-to-day decisions.

Reviews and Appeals of Board Decisions

The Board may review, rescind, or change any of its orders or decisions, or re-hear any application before deciding on it. It may also change a previously issued certificate or licence, but no such change is effective until approved by the Governor in Council. Parties may apply to the Board requesting that an order or decision be reviewed, or a licence or certificate amended.

A decision or order of the Board may be appealed to the Federal Court of Appeal, provided the appeal is based on a point of law or jurisdiction.

Awarding of Costs

The Board does not have the power to award costs to participants in its proceedings. This power was recently tested in the courts with reference to costs incurred by certain intervenors involved in the review of an approval of the location of a propane terminal in Flamborough, Ontario. (For more information refer to *Legal Actions*.)

In the case of detailed route hearings, the Board may establish the appropriate level of compensation to be paid to a landowner for costs associated with participation in the hearing.

Organization

Members of the National Energy Board

Mr. R. Priddle assumed the duties of Chairman on 10 January 1986, upon the retirement of Mr. C.G. Edge. The membership of the Board as of 31 December 1986 is:

Mr. R. Priddle	Chairman
Mr. R.F. Brooks	Vice-Chairman
Mrs. L.M. Thur	Associate Vice-Chairman
Mr. A.D. Hunt	Associate Vice-Chairman
Mr. J. Farmer	Member
Mr. J.R. Jenkins	Member
Mr. R.B. Horner, Q.C.	Member
Mr. W.G. Stewart	Member
Mr. A.B. Gilmour	Member

Mr. W.A. Scotland, Associate Vice-Chairman and Member of the Board since 1974, resigned from the Board on 10 June 1986.

Mr. J.R. Hardie, who was appointed to the Board in 1979, retired on 8 March 1986.

Mr. J.L. Trudel, who was also appointed to the Board in 1979, retired on 25 March 1986.

Mr. R.B. Horner, who was first appointed to the Board in 1979, was reappointed effective 7 November 1986.

Mr. A.B. Gilmour, who served as a Temporary Member since 1980, was appointed a Member effective 1 October 1986.

Standing Panels

The Board assigns much of its non-hearing regulatory work to five Standing Panels, each composed of a quorum of three Board Members. In addition, certain Board Members and senior staff participate in committees that deal with issues of a broad regulatory nature or with matters affecting the internal management of the Board.

The Standing Panels refer to the Board as a whole any matters they feel may raise questions of general policy or warrant a public hearing. Except as noted below, Panels do not issue or amend certificates or licences, or decide matters requiring a public hearing.

Members of the Board's Standing Panels as of 31 December 1986, and their responsibilities, are given below. The composition of Standing Panels is changed at appropriate intervals to provide Members with an opportunity to become familiar with all aspects of the Board's work. The first-named member of each panel is the Panel Chairman, the fourth is the Alternate Member. The Board's Chairman is an ex-officio member of all Panels and Committees.

Oil Panel

Issues export orders for crude oil and petroleum products; regulates matters of traffic on oil pipelines; advises the Minister respecting oil-related energy matters in general; and monitors and reports on oil exports as required by the *Western Accord*, (the March 1985 Agreement between Canada, Alberta, British Columbia and Saskatchewan on oil and gas pricing and taxation).

R.F. Brooks
A.D. Hunt
J. Farmer
R.B. Horner

Gas Panel

Exercises the powers of the Board on matters relating to natural gas, propane, butanes, and ethane, and on matters of traffic in gas pipeline services; approves gas export contract amendments including, until November 1986, pricing; and, subject to Governor in Council approval, issues concordant amendments to gas export licences; issues short-term gas orders; and advises the Minister on all matters relating to gas export markets.

A.D. Hunt
R.B. Horner
A.B. Gilmour
R.F. Brooks

Electrical Panel

Exercises the Board's powers on all matters relating to electricity; issues electrical exemption and export orders; and advises the Minister on electricity matters.

L.M. Thur
J.R. Jenkins
W.G. Stewart
A.B. Gilmour

Pipeline Panel

Exercises the powers of the Board in matters relating to the construction, operation, and maintenance of pipelines, including safety and environmental considerations.

J.R. Jenkins
R.B. Horner
A.B. Gilmour
J. Farmer

Financial Regulatory Panel

Exercises the powers of the Board with respect to tariffs and tolls charged by pipeline companies under the Board's jurisdiction.

W.G. Stewart
L.M. Thur
J. Farmer
J.R. Jenkins

Committees

The Board's Committees review matters that relate to the Board's internal procedures and management. Committee members as of 31 December 1986 and their responsibilities are given below. The first-named member of each Committee is the Committee Chairman.

Executive Committee

Deals with broad, long-term issues affecting the Board.

R. Priddle
R.F. Brooks
L.M. Thur
A.D. Hunt
R. St. G. Stephens (Executive Director
of the Board)

Internal Audit Committee

Initiates audits and reviews their results to the end that the Board's operations are administered efficiently, economically, and effectively.

R. Priddle
R.F. Brooks
L.M. Thur
R. St. G. Stephens

Regulatory Process Committee

Studies and keeps under review all aspects of the regulatory process and recommends to the Board measures to improve the efficiency and effectiveness of regulation.

R.F. Brooks
L.M. Thur
J.S. Klenavic
S.K. Fraser

Staff

For the fiscal year 1986-87 the Board's budget was \$26.5 million with a person-year allocation of 449.

The Board's offices and branches are described below; the inside back cover of this report lists the Board's senior staff.

The Executive Director is the Board's senior staff member, with responsibilities that include the overall management of the Board, the acquisition and allocation of human and financial resources, and the efficiency and effectiveness of Board activities and operations.

The Finance Branch coordinates and administers the financial policies under which the Board operates and provides advice and services relating to financial activities.

The Personnel Branch provides advice and services in the areas of staffing, human resources planning, training, affirmative action, health and safety, security, official languages, classification, staff relations, and pay and benefits.

The Director General, Energy Regulation is responsible for the integration of all staff activities involving the regulation of energy exports. This encompasses planning and coordinating all work affecting the regulation of exports of oil, gas, and electricity under Part VI of the National Energy Board Act, and coordinating the analysis of all matters related to energy demand, supply and surplus under Part II of the Act.

The Economics Branch advises the Board on economic and socio-economic matters and maintains an energy statistics unit. The Branch prepares projections of energy demand in Canada and maintains surveillance of similar studies done for the United States. The Branch's responsibilities include analysis of the impact of proposed energy projects on the economy and socio-economic conditions of Canada and its regions. It also assesses the extent to which Canadians will have an opportunity to participate in projects.

The Energy Supply Branch is responsible for advising the Board on matters relating to oil and gas exploration, drilling, and production and forecasts trends in oil and gas supply from conventional, oil sands, synthetic, and frontier sources. The Branch independently calculates the reserves and deliverability of gas and the reserves and producibility of oil. The calculation of gas and oil reserves by pool is carried out in the Board's Calgary office.

The Electric Power Branch advises the Board on matters relating to electricity export licensing, international power line certification, detailed route approval and export monitoring. The Branch prepares supply and demand forecasts for electricity that are used in dealing with electrical and other applications, reviews the American market for electricity, and provides advice to the Board on matters under federal jurisdiction that relate to the production, transportation, sale, and exchange of electricity.

The Gas Branch advises the Board on matters related to natural gas and gas products, including the regulation of all matters relating to traffic in gas pipeline services and the export of gas and gas products by orders and licences. The Branch also monitored and controlled matters associated with the Board's obligations for the administration of domestic natural gas pricing under the Energy Administration Act, up to November 1986. The Branch maintains a statistics unit, which is responsible for the collection and dissemination of operational data related to the consumption and transportation of gas and gas products. As well, the Branch is responsible for preparing short-term forecasts for domestic and export gas and gas products demand. In addition, it plays a supportive role in all other regulatory activity related to gas and gas products.

The Oil Branch provides advice on oil-related energy matters, including oil markets, transmission, processing, distribution, and the short-term balance of supply and demand for feedstocks and oil products. The Branch advises the Board on oil pipeline traffic matters and reviews the export prices of domestic crude oil and petroleum products and international oil prices.

The Director General, Pipeline Regulation integrates all staff activities relating to the regulation of gas, oil, and petroleum products pipelines. This encompasses the design, construction, operation, safety, and environmental concerns specified under Part III of the National Energy Board Act and matters regarding tolls and tariffs under Part IV of the Act.

The Pipeline Engineering and Operations Branch advises the Board on matters relating to pipeline certificates issued under the National Energy Board Act and for the regulation of the safety of pipeline facilities under the Board's jurisdiction. The Branch is the Board's principal source of advice on engineering matters included in applications by pipeline companies for facilities construction and tolls.

The Environment and Right-of-Way Branch is responsible for providing advice to the Board with respect to assessing the protection of the environment and the acquisition of land for pipelines and international power lines. The Branch assesses submissions from affected landowners regarding the detailed route of those facilities, verifies the accuracy of right-of-way acquisitions, and evaluates the technical requirements related to third-party crossings of pipelines.

The Financial Regulatory Branch has the primary responsibility for advising the Board on all matters concerning rates, tolls and tariffs charged by the oil and gas pipelines. As such, it takes a leading role in dealing with all toll applications that come before the Board by providing financial analysis and co-ordinating staff support. It also monitors and audits the financial performance of pipelines under the Board's jurisdiction and conducts financial analysis on applications to the Board for the construction of pipeline facilities. In addition to being the Board's principal source of financial advice, it also conducts audits of petroleum export charges, gas export licences, and transportation costs under specific sections of the National Energy Board Act and the Energy Administration Act.

The Law Branch provides legal advice to the Board on all matters relating to the Board's powers and responsibilities, acts as Counsel for the Board at public hearings, and represents the Board in proceedings before the Federal and Supreme Courts of Canada.

The Office of the Secretary receives all applications and submissions and coordinates their consideration by the Board. It advises the Board on the scheduling of hearings, and makes all administrative arrangements for public hearings in Ottawa and across Canada.

In addition, it provides media and public relations services, publications services, property and materiel management, records management services, and operates the Board's library. It administers the Access to Information and Privacy Acts and coordinates translation services with the in-house translation unit provided by Secretary of State.

The Information Technology Branch is responsible for computer systems services, word processing support, and data processing support. This includes consultative services on computer operations, data management, program design and development, and advisory services on the latest data processing techniques and applications. Branch responsibilities also include the integration of information and processing systems and services for the Board.

Review of Energy Developments

Overview

International Oil Prices

During the first half of 1986, oil prices suffered a sharp decline of unexpected proportions, with far-reaching effects on income and employment in both oil-producing and oil-consuming regions. This price decline followed Saudi Arabia's decision in late 1985 to abandon its role as swing producer of the Organization of Petroleum Exporting Countries (OPEC) and to adopt a policy of defending its share of the world oil market. As swing producer, Saudi Arabia voluntarily curbed its production of crude oil in order to bolster the price of oil. However, as Saudi output declined, its share of production in the world oil market also fell, from 20 percent as recently as 1981 to just under seven percent by 1985. In an effort to reverse this trend, Saudi Arabia steadily increased its oil output from a 1985 average level of 3.2 million barrels per day, or just over one-third of its production capacity, to an average of 4.6 million barrels per day in 1986. As other major producers joined in the contest for market share, OPEC's total production increased by roughly 17 percent over its 1985 average level, reaching over 20 million barrels per day in early August. However, over the same period, world demand for oil increased only two to three percent relative to 1985 levels. The continued rise in OPEC oil output in late 1985 and the first eight months of 1986, combined with a relatively weak world oil demand, resulted in a sharp decline in the spot price of internationally traded crude¹ from

an average of \$U.S. 28 per barrel in 1985 to \$U.S. 15 per barrel in 1986.

Faced with increasing financial pressure due to dwindling oil export revenues, the OPEC ministers met in August 1986 in an attempt to reach agreement to limit production and thereby to reverse the collapse of oil prices. OPEC members agreed on a new schedule of temporary production quotas for September and October, which was subsequently extended to the end of December. In response to the OPEC agreement, spot prices for crude oil recovered from lows near \$U.S. 11 per barrel in late July to about \$U.S. 17 per barrel by the end of 1986.

Canadian Energy Policy

The major development in domestic energy policy in 1986 was the transition over the course of the year to the deregulation of domestic natural gas prices on

1 November 1986 in accordance with the *Agreement on Natural Gas Markets and Prices*, signed on 31 October 1985. As of 1 November 1986, domestic natural gas prices are determined by negotiation between buyers and sellers. End-users such as industrial or large commercial customers and distributors are free to negotiate directly with gas sellers.

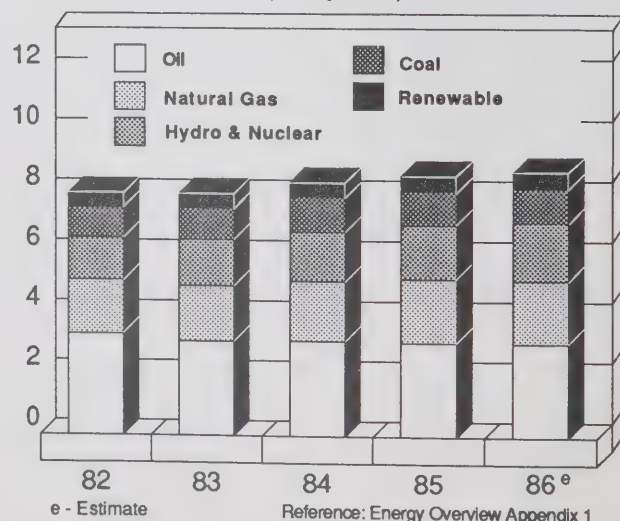
Measures affecting domestic pricing of natural gas and natural gas export regulation are discussed in *Other Board Activities* and in *Legislation and Regulations*.

Energy Production, Consumption and Trade

Canadian economic growth in 1986 was modest; investment

1 International oil prices quoted are those for West Texas Intermediate crude oil at Cushing, Oklahoma, in U.S. dollars per barrel.

Figure 1
Canadian Energy Consumption
(Petajoules)



remained weak, particularly in the face of low energy prices. The economy's strong net trade position of 1985 declined during the year.

Canadian primary energy demand in 1986 grew by only 1.1 percent despite the sharp decline in oil prices over the course of the year. Natural gas and oil consumption declined slightly, while total electricity consumption rose by two percent.

The level of crude oil production remained unchanged from 1985. The increase in crude oil exports was balanced in 1986 by an increase in imports. Lower export volumes of natural gas were the

major factor in the decreased production of natural gas. Primary electricity generation from hydro and nuclear sources rose by eight percent during the year.

Total exports of oil, gas and electricity were one percent below 1985 volumes. The value of these exports was down sharply by 34 percent, to \$9.6 billion, and Canada's energy trade surplus declined from close to \$10 billion in 1985 to \$5.9 billion.

Strong gains of 12 percent in the volume of petroleum exports were offset by declines of 20 percent in natural gas exports and 15 percent in electricity exports.

Crude Oil and Petroleum Products

Domestic Supply and Demand

The volume of crude oil processed by refineries in Canada decreased by two percent during 1986, reflecting a fall in domestic demand for petroleum products and reductions in product inventory. Regionally, demand for the main petroleum products (gasoline, middle distillates and heavy fuel oil) increased marginally in eastern Canada including Ontario, and fell by two percent in western Canada. A small reduction in demand for motor gasoline reflected continuing improvements in the fuel efficiency of motor vehicles, while warmer weather as well as substitution and conservation measures reduced the demand for heating oil. The use of heavy fuel oil increased in the industrial sector, reflecting a price advantage of that fuel over natural gas. Diesel fuel consumption showed no change.

During 1986, receipts of domestic crude oil and equivalent by Canadian refineries decreased by about ten percent because of the elimination of the transportation subsidy to refineries east of Montreal, the closure of the Gulf refinery in Montreal, and a general decrease in crude runs. An additional factor was that Interprovincial Pipe Line Limited's system operated at capacity in most months, necessitating the apportionment of tenders to both export and domestic delivery points. Crude oil imports, which increased by 30 percent, offset the reduction in domestic deliveries, and met an increased export

Table 1
Canadian Trade Balance in
Petroleum, Gas and Electricity
(Petajoules and Billions of Dollars)

	1984		1985		1986 ^e	
	PJ	\$ Billions	PJ	\$ Billions	PJ	\$ Billions
Exports						
Petroleum ^a	1 177	6.8	1 560	9.1	1 750	6.0
Natural Gas	809	3.9	990	4.0	790	2.5
Electricity ^b	135	1.4	149	1.4	127	1.1
Total	2 121	12.1	2 699	14.5	2 667	9.6
Imports ^c						
Petroleum ^a	702	4.3	775	4.8	918	3.7
Net Export Total	1 419	7.8	1 924	9.7	1 749	5.9

The numbers in this table have been rounded.

e - Estimate

a - Includes petroleum products. Excludes exchanges between Canada and the United States.

b - Electricity is converted at 3.6 petajoules per terawatt hour on the basis of the energy content of the electricity output. Excludes exchanges between Canada and the United States.

c - Import quantities of natural gas and electricity were negligible.

demand for refined products from the Atlantic region, resulting mainly from processing agreements with American buyers.

Canadian production of conventional light and medium crude oil declined by six percent, to 148 300 cubic metres per day, largely as a result of pipeline capacity constraints to deliver crude oil.

During 1986, the productive capacity of light crude oil that was shut-in due to market or pipeline constraints was 12 200 cubic metres per day, an increase over the 10 300 cubic metres per day in 1985. The shut-in productive capacity of heavy crude oil, including bitumen, was 4 100 cubic metres per day, up from

2 500 cubic metres per day in the previous year.

Improved operating efficiencies in oil sands mining plants raised synthetic crude oil production by about nine percent, to 29 200 cubic metres per day. Expanding output from the Cold Lake area resulted in a 19 percent increase in heavy crude oil production, to 64 500 cubic metres per day. The total crude oil and equivalent production of 249 600 cubic metres per day in 1986 approximated the production rate of 248 000 cubic metres per day experienced in 1985.

Export Volumes

Canadian demand for heavy crude oil remained virtually unchanged from previous years, and

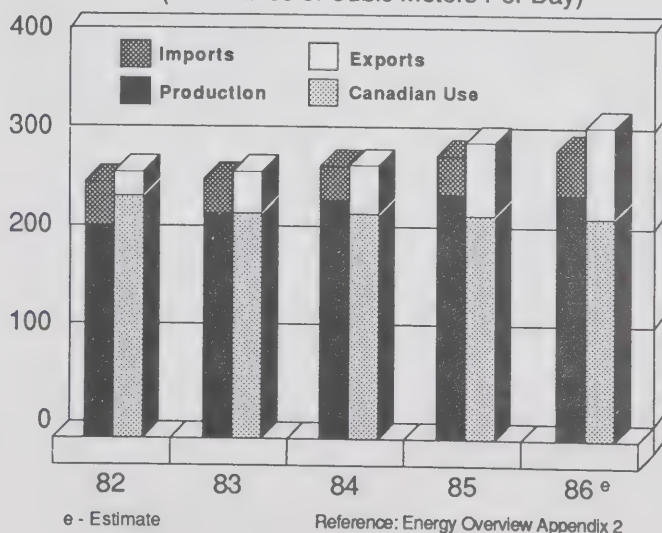
increased domestic availability resulted in yet another record level of heavy crude oil exports. Exports of heavy crude averaged 52 300 cubic metres per day, delivered mainly to the American midwest.

Exports of light crude oil to the United States also increased substantially, averaging some 41 300 cubic metres per day. In late 1985, the Alberta Energy Resources Conservation Board introduced the Supplementary Oil Sales program, designed to permit sales of crude oil to non-Canadian refiners after the primary market demand, which includes demand by refiners in both Canada and the United States, had been met. Exports of crude oil under this program averaged 6 100 cubic metres per day and represented about 15 percent of total light crude oil exports.

During the first quarter of 1986, petroleum product exports dropped to an average of 16 000 cubic metres per day, caused primarily by the dramatic drop in world oil prices which affected all oil markets. During the rest of the year, as markets stabilized, product exports increased, averaging 19 500 cubic metres per day for the full year, a decrease of 2 000 cubic metres per day from the previous year. Exports of product were made to several overseas destinations including Japan, Korea, Hawaii, Samoa, New Zealand, Central America, and the Caribbean. The United States continued to be our largest buyer, accounting for some 90 percent of total product exports with sales made to 27 states.

Table 2 shows petroleum product export volumes by region and the average export price for each product for the year 1986.

Figure 2
Crude Oil and Equivalent Supply and Disposition
(Thousands of Cubic Meters Per Day)



Canadian Crude Oil Disposition and Imports — 1986

(Thousands of Cubic Metres per Day)

Figure 3

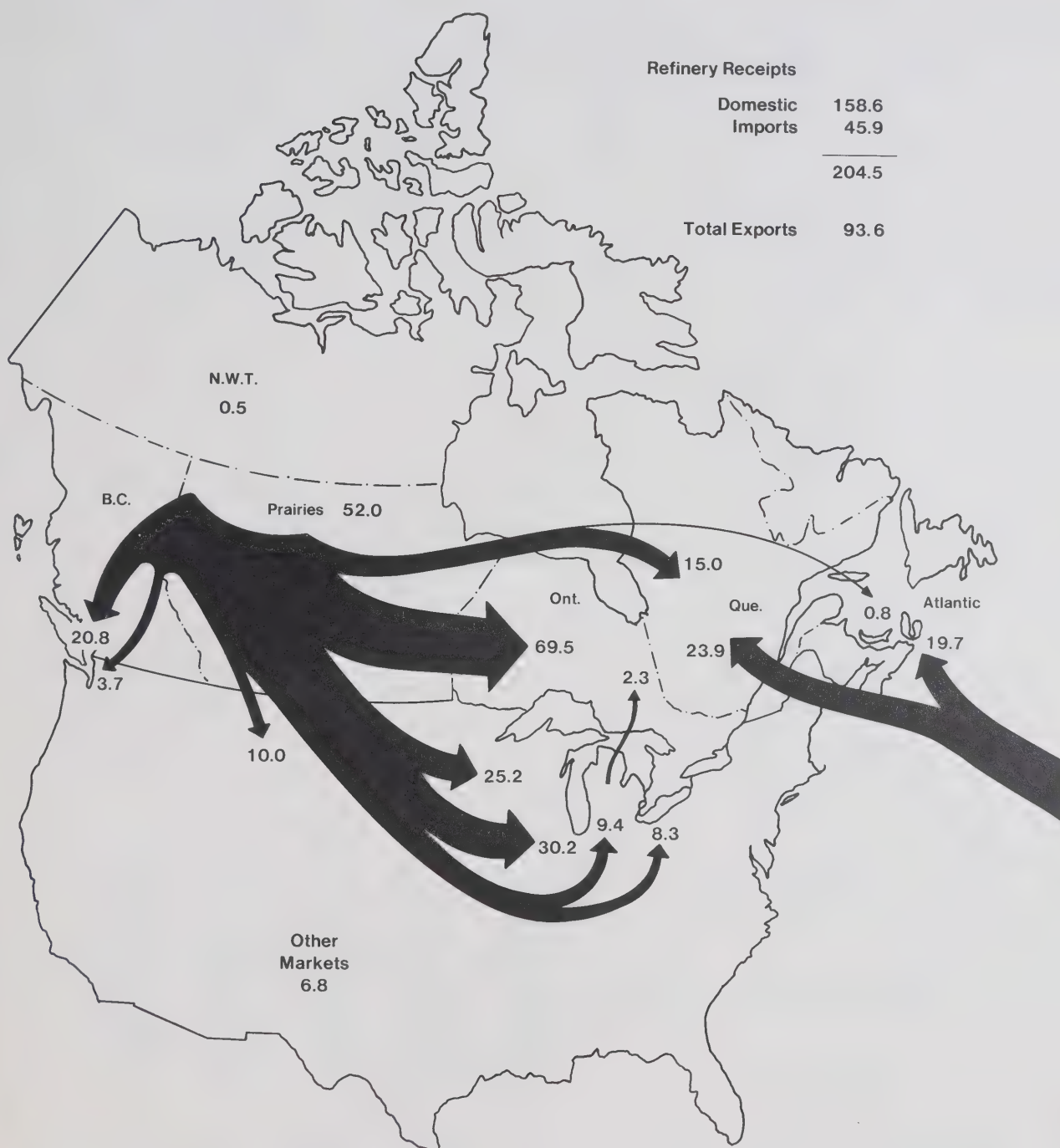


Table 2
1986 Product Exports
(Thousands of Cubic Metres)

	Motor Gasoline	Middle Distillate	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total
Atlantic	1 051	1 349	95	174	—	2 669
Quebec	33	287	—	288	137	745
Ontario	409	711	—	869	9	1 998
Prairies	226	306	109	45	—	686
B.C.	378	355	286	—	29	1 048
Total	2 097	3 008	490	1 376	175	7 146
Average Export Price (\$/m ³)	172	170	158	112	124	

The total volume of crude oil and petroleum product exports increased by approximately 17 percent over that of 1985. On balance, considering both exports and imports of crude oil and petroleum products, Canada was a net exporter of some 43 000 cubic metres per day in 1986, which is similar to the previous year. Appendices 4 and 5 provide more detail on exports of crude oil and products.

Export Prices

The large decline in international oil prices in late 1985 and early 1986 was reflected in substantial reductions in Canadian crude oil and petroleum product prices. By April, prices began to stabilize, although at a much lower level. Figures 4 and 5 illustrate the drop in export prices for both crude oils and main petroleum products during 1986.

Figure 4
Crude Oil
Average F.O.B. Export Price
(Canadian Dollars Per Cubic Metre)

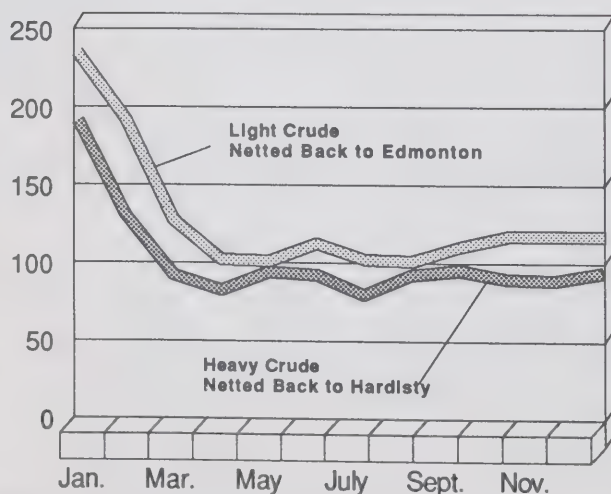
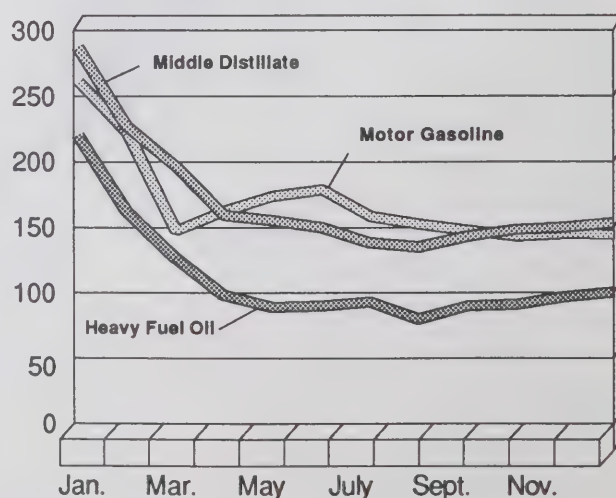


Figure 5
Main Petroleum Products
Average F.O.B. Export Price
(Canadian Dollars Per Cubic Metre)



Pipeline Capacity

Interprovincial Pipe Line Limited transports light and heavy crude oil from the western producing provinces to markets in Canada as far east as Montreal, as well as to export markets in the American midwest. During 1986, the pipeline operated at capacity with apportionment of available capacity among oil shippers being required in many months. Construction is proceeding on a phased program to provide additional capacity. Phase II of the program progressed in 1986 and Phase III commenced, following Board approval. Additional capacity will be made available in stages during 1987.

Natural Gas

Supply and Domestic Demand

In 1986, net sales of natural gas in Canada decreased by 3.6 percent from 1985, to 48.3 billion cubic metres. Half of all gas sales in Canada are made to industrial markets, where sales declined from 26.7 billion cubic metres in 1985 to 25.1 billion cubic metres in 1986.

Although city-gate prices east of Alberta were still prescribed under the Energy Administration Act up to 31 October 1986, the 1985 *Agreement on Natural Gas Markets and Prices* permitted direct sales and competitive

marketing programs for the sale of gas at prices below the regulated Alberta border price of 279.804 cents per gigajoule. On an annualized basis, it is estimated that 11 billion cubic metres of discount gas was under contract at an average discount of about 83 cents per gigajoule below the regulated Alberta border price. Commencing in September, TransCanada PipeLines Limited negotiated contract amendments with its distributors which provided for a 20-cent per gigajoule discount on all firm sales contracts and additional discounts to meet competitive conditions in specific markets.

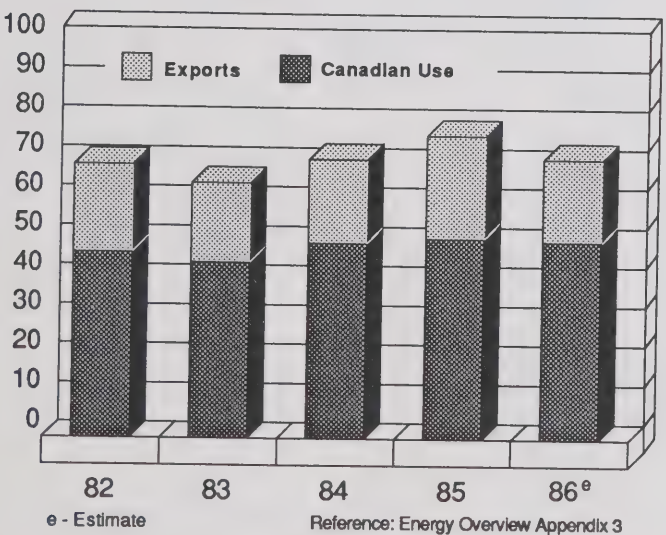
Exports

During 1986, gas export volumes decreased by 19.8 percent from 1985, to 21.0 billion cubic metres, and export prices at the border declined by 21 percent, to an average of \$3.20 per gigajoule. The collapse of oil prices, coupled with a continuing decline in American domestic prices, was the main cause of the sharp decrease in gas export prices. Total gas export revenues were \$2.53 billion.

In the past year, there has been a rapid growth in short-term direct sales within the American market. As a result, Canadian exporters are increasingly turning to direct sales export arrangements with shorter contract periods. The creation of this short-term market has led to cost savings for American consumers and has encouraged long-term suppliers to offer contracts that are more market responsive.

In 1986, the Board approved 94 short-term gas export orders, compared with 24 in 1985.

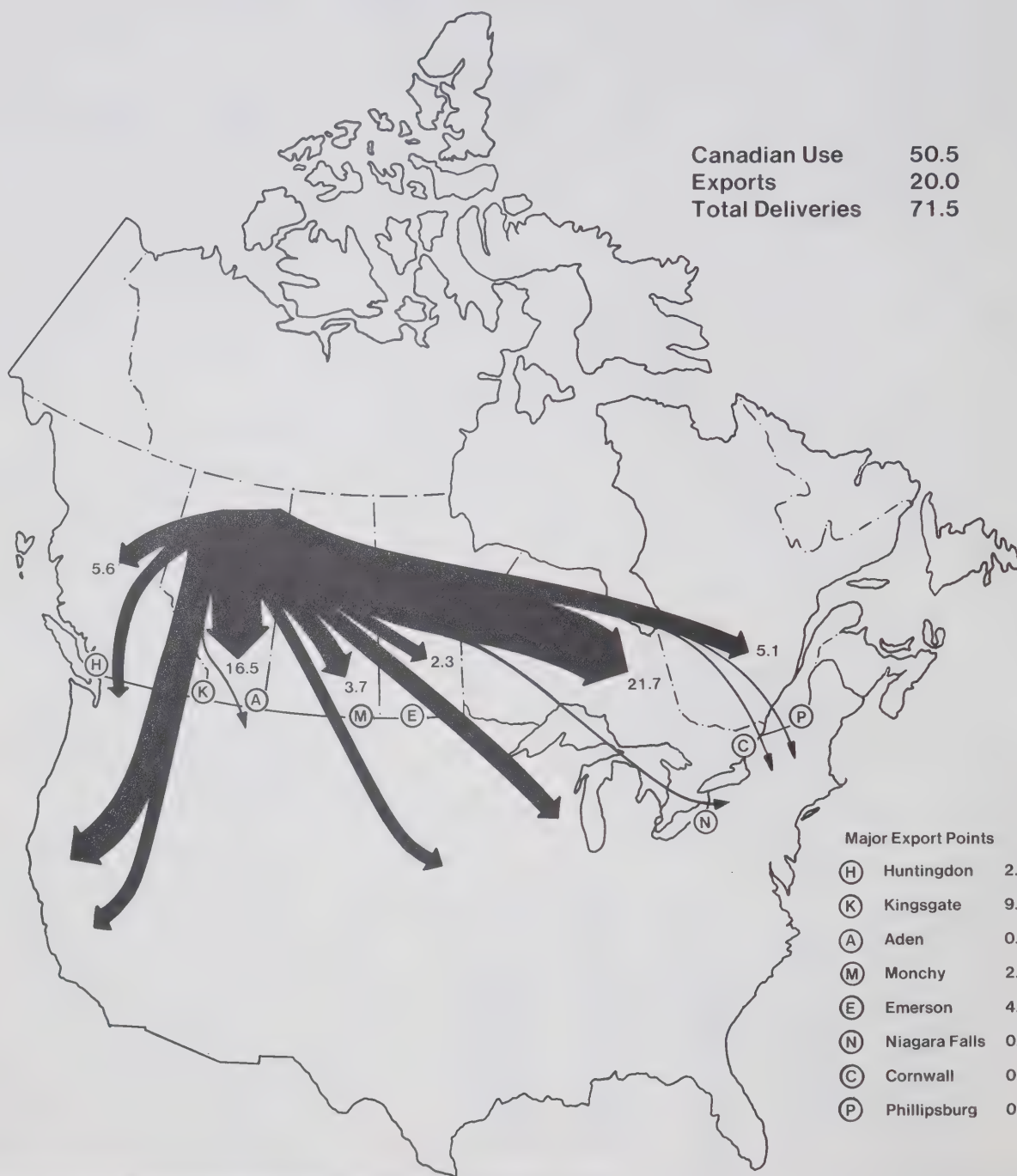
Figure 6
Natural Gas
Supply and Disposition
(Billions of Cubic Metres)



Natural Gas Disposition 1986

(Billions of Cubic Metres)

Canadian Use	50.5
Exports	20.0
Total Deliveries	71.5



This figure illustrates the major flows of Canadian Gas from sources of supply to markets. Each arrow is proportionate in width to the volume of gas which flowed in 1986. The numbers in this table have been rounded.

Figure 13 presents a map which indicates the location of natural gas pipelines regulated by the Board.

However, a limited amount of gas authorized under these orders was exported, mainly due to the inability of exporters to gain access to American interstate pipelines. The small increase in exports by short-term order was more than offset by the reduction in exports by licence. In the 1985-86 contract period, only 37 percent of quantities authorized by export licence were actually exported, compared with 55 percent during the previous period.

The restrictions on access to American pipelines are not expected to continue. Under the Federal Energy Regulatory Commission (FERC) Order 436, designed to increase competition in the American gas industry, the majority of interstate pipelines are expected to become "open-access" transporters of gas, which should result in improved access to markets for Canadian gas.

Effective 1 November 1986, export pricing procedures were changed such that prior approval is no longer required before gas export prices are implemented. This change is discussed in *Other Board Activities*.

At year-end 1986, the outlook for gas exports is uncertain. In the immediate future, Canadian exports will be strongly influenced by changes in the structure of American markets and the nature and pace of change in the American regulatory environment.

Of particular concern at the end of 1986 was FERC Opinion No. 256, which disallowed the recovery of certain pipeline transportation costs as negotiated in gas export contracts. If upheld, this decision

could result in a loss of gas export sales.¹

Natural Gas Liquids

Total net Canadian production of propane and butanes in 1986 was 4.2 and 3.0 million cubic metres respectively, about four percent below 1985 levels. Ethane production was eight million cubic metres. Canadian domestic requirements for propane and butanes dropped substantially in 1986, reflecting a decline in the use of natural gas liquids by the petrochemical industry. Export quantities of propane, butanes and ethane amounted to 1.3, 1.4 and 0.3 million cubic metres respectively.

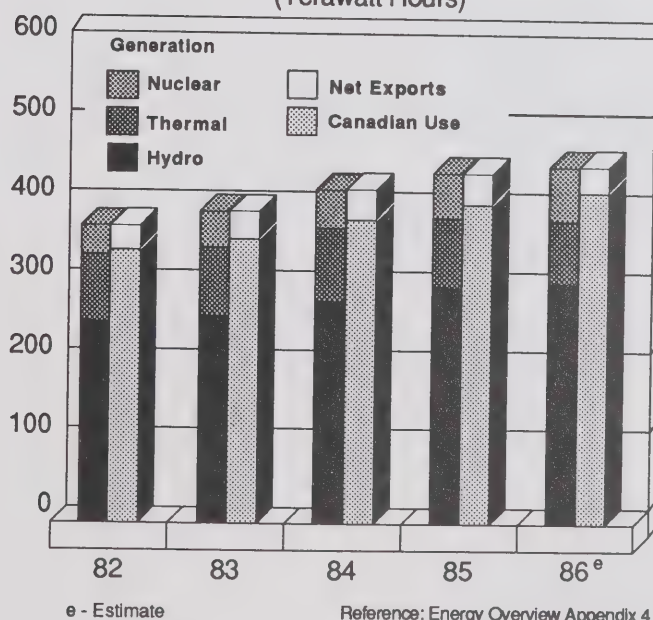
Electricity

Generating Capacity

In 1986, Canada's total net installed electrical capacity was approximately 93 000 megawatts, an increase of three percent over 1985. This represents an increase of approximately 2 500 megawatts, the majority of which were new nuclear units in Ontario.

¹ In January 1987, the National Energy Board filed with the Federal Energy Regulatory Commission a submission stating the Board's concerns.

Figure 8
Electricity
Generation and Disposition
(Terawatt Hours)



Generation and Consumption

Total generation of electricity in 1986 is estimated to have been 455 000 gigawatt hours, up two percent over 1985. Approximately 67 percent of this was supplied from hydroelectric generation, 18 percent from conventional thermal generation, and 15 percent from nuclear generation. Total Canadian consumption in 1986 is estimated to have been 422 000 gigawatt hours, an increase of four percent over 1985.

New Transmission Facilities

Only one new international power line was put into service during the year. This was Hydro-Québec's \pm 450-kilovolt high-voltage, direct-current (HVDC) interconnection with the New England states with a transfer capacity of 690 megawatts. This was the first line for which the detailed route approval process, arising from a 1983 amendment to the National Energy Board Act, was followed.

In addition, a new 500-kilovolt interprovincial transmission line between the TransAlta Utilities Corporation and the British Columbia Hydro and Power Authority was put into commercial use in January 1986.

Export Sales

Canadian electricity export sales for 1986 amounted to 35 271 gigawatt hours with an associated revenue of \$1.1 billion. This is a decrease of 15 percent in quantity and 24 percent in revenue compared to 1985.

Many Canadian export prices are based on the cost of electricity being displaced in the American

market. Traditionally, the energy exported from Canada has been used to displace high cost oil- and gas-fired generation. With falling oil and gas prices, Canadian export volumes and, more particularly, revenues have decreased markedly.

The New Brunswick Electric Power Commission was able to maintain its total export volume but at the expense of lower revenue. N.B. Power exports mainly coal- and oil-fired generation and some hydro energy

Table 3
Canada - United States Electricity Trade
By Importing Region/State And Exporting Province
(Gigawatt hours)

To Region/State	From Province	Sales ¹
Maine	New Brunswick	4 799
Massachusetts	New Brunswick	1 853
Vermont	Quebec	1 472
	Ontario	329
	Total	1 801
New England ²	Quebec	1386
New York	Quebec	9 781
	Ontario	5 685
	Total	15 466
Michigan	Ontario	744
Minnesota	Ontario	328
	Manitoba	5 410
	Total	5 738
North Dakota	Manitoba	1 271
	Saskatchewan	110
	Total	1 381
Washington	British Columbia	522
Oregon	British Columbia	1 181
California	British Columbia	400
Total		35 271

1 - Excluding exchanges

2 - Exports are made to the New England Power Pool - the states receiving the power cannot be accurately determined.

International and Interprovincial Transfers of Electricity

Figure 9

(Gigawatt Hours)



Note:

Data for interprovincial transfers of electricity are from 1 November 1985 to 31 October 1986 and are compiled from "Statistics Canada: Electric Power Statistics Monthly."

Data for United States imports and exports are for 1986 and are compiled by the National Energy Board

purchased from Hydro-Québec to a market where oil-fired generation is predominant. Interruptible sales were up 23 percent in 1986, but the corresponding revenue declined by 24 percent.

Hydro-Québec, whose exports are from low-cost hydro sources, increased its total export quantity by 32 percent and revenue by 14 percent. Firm sales, in terms of quantity and revenue, increased by 20 percent and 25 percent, respectively, while interruptible sales were up 38 percent in volume and a modest six percent in associated revenue.

Ontario Hydro's exports were particularly affected by lower oil prices. Ontario Hydro's coal-fired generation lost its economic edge over the oil-fired generation available in the United States and both export volume and revenue decreased by 30 percent.

Manitoba Hydro, which sells to a coal-fired market, was not influenced by oil prices. In 1986 Manitoba Hydro experienced very good water conditions and maintained a high level of exports. Export volume increased by 24 percent and the associated revenue increased 16 percent.

In British Columbia, although both the British Columbia Hydro and Power Authority and Cominco Ltd. experienced good water conditions and had surplus energy available for export during most of the year, access to American markets was restricted. The Bonneville Power Administration, which supplies much of the American west coast market including some of California's needs, also had surplus energy available and used its

transmission facilities which otherwise could have been used by the British Columbia utilities. The somewhat reduced demand in the California market also contributed to lower export sales. It was more economical for some California utilities to run their own oil-fired plants than to purchase from B.C. Hydro. Exports from British Columbia were reduced by 81 percent and revenues down by 84 percent.

Because of their relation to exports, the Board monitors Canadian electricity generation and interprovincial transfers although it does not regulate these matters. Figure 9 shows exports and imports in 1986 as well as interprovincial transfers for the 12 months ending October 1986. Table 3 shows, by province, the destination of all exports. About 44

percent of all electricity exports were made to the state of New York.

The appendices relating to electricity at the back of this report list the quantities of energy exported under each licence and order. There were no new certificates for international power lines or new licences to export electrical energy issued during 1986.

Table 4
Drilling Activity by Area
(Number of Wells Drilled)

	1985 ¹	1986 ²
British Columbia	235	172
Alberta	7 937	4 784
Saskatchewan	3 815	1 182
Manitoba	269	136
Ontario and Other Eastern Producing Provinces	204	104
Territories and Arctic Islands (Includes Beaufort Sea and Mackenzie Delta)	75	57
East Coast Offshore	27	17
Hudson Bay	2	—
Total For Canada	12 564	6 452

1. Canadian Petroleum Association data.

2. Oilweek data.

Oil And Gas Exploration
and Reserves

Exploration And Drilling Activity

The collapse of world oil prices in early 1986 resulted in a major decline in exploration and drilling activity. During 1986, approximately 6 450 wells, including 30 offshore wells, were drilled throughout Canada - 50 percent of the 1985 record of 12 564 wells. As in the previous five years, drilling activity was directed mainly toward finding oil rather than gas. A regional breakdown of drilling activity is shown in Table 4.

The largest decrease in the number of wells drilled resulted from the slowed development of heavy oil and bitumen in Alberta and Saskatchewan.

In order to assist the depressed oil producing industry, the federal government removed the Petroleum and Gas Revenue Tax, the Alberta government introduced several assistance programs, and both Saskatchewan and Alberta reduced royalty rates and granted royalty holidays.

The number of geophysical crews operating during 1986 was about 42 percent lower than in 1985. Only 36 percent of the drilling rigs available in Canada during 1986 were active, compared to 60 percent in the previous year.

British Columbia

Drilling activity in British Columbia declined 30 percent during 1986 compared with 1985. Most of the drilling was in the northeast part of the province and was directed toward the search for oil.

Alberta

The total number of wells drilled in Alberta during 1986 was 40 percent lower than in 1985. As in previous years, most of the activity was concentrated in, and adjacent to, areas of known oil reserves. The eastern flank of the Peace River Arch in northwestern Alberta continued to be active, where the primary target was oil in reefs of Devonian age. In central Alberta, drilling adjacent to known large Devonian reefs resulted in several oil and gas discoveries in smaller Devonian reefs.

In the east-central part of the province, where the main objective is development of bitumen and heavy oil in the sands of Cretaceous age, many projects were reduced in size, postponed or cancelled.

Saskatchewan

Drilling in Saskatchewan was particularly hard hit: only one-third the number of wells were drilled in 1986 as in the record year of 1985, when 3 815 wells were drilled. Shallow gas development in southwestern Saskatchewan continued at a brisk rate during the first half of 1986 but then declined in the second half.

The discovery of light oil in a Winnipegosis pinnacle reef in the Tableland area has renewed industry's interest in the deeper zones within the southeastern part

Table 5		
Estimated Established Reserves of Conventional Crude Oil at 31 December 1985		
(Millions of Cubic Metres)		
	Initial	Remaining
British Columbia	82.3	19.7
Alberta	2032.0	558.2
Saskatchewan	437.0	113.7
Manitoba	34.5	10.5
Northwest Territories	39.9	34.2
Ontario	10.5	1.1
Total for Canada	2636.1	737.4
The numbers in this table have been rounded.		

Table 6
Estimated Established Reserves
of Marketable Natural Gas
at 31 December 1985

(Exajoules)

	Initial ^p	Remaining ^p
British Columbia	15.8	8.9
Alberta	113.8	65.6
Saskatchewan	3.3	2.1
Southern Yukon and Northwest Territories	0.6	0.4
Ontario and Other Eastern Producing Areas	1.3	0.5
Total	134.9	77.4
Mackenzie Delta	5.6	5.6
Arctic Islands	12.0	12.0
Total for Canada	152.5	95.0

The numbers in this table have been rounded.

p - preliminary

of the province. As in previous years, drilling was concentrated in the west-central part of the province for heavy oil in the Lower Cretaceous sands.

Manitoba

Drilling in Manitoba continued to be directed towards the development of oil reserves in the southwestern part of the province. The number of well completions in 1986 was about one-half that of 1985.

Frontier Areas

In 1986, 74 wells were completed in Canada's frontier areas, a reduction from the 1985 level of 104 wells. Thirty wells were completed in the offshore areas of the Mackenzie Delta-Beaufort Sea, Arctic Islands and East Coast. The remaining wells were located on the Northwest Territories mainland.

Figure 10
Crude Oil
Reserves Additions vs. Production
 (Millions of Cubic Metres)

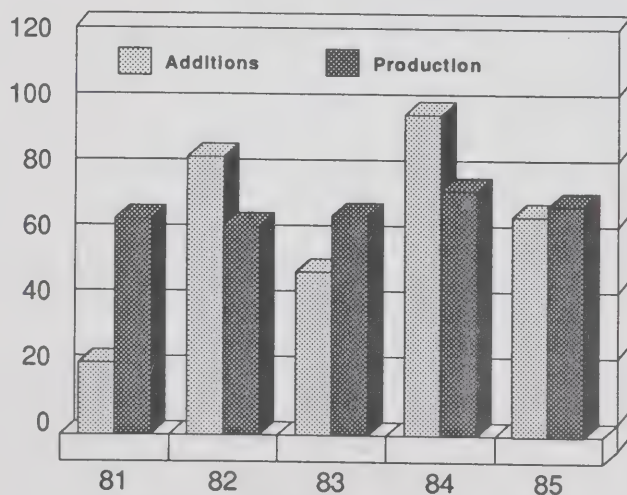
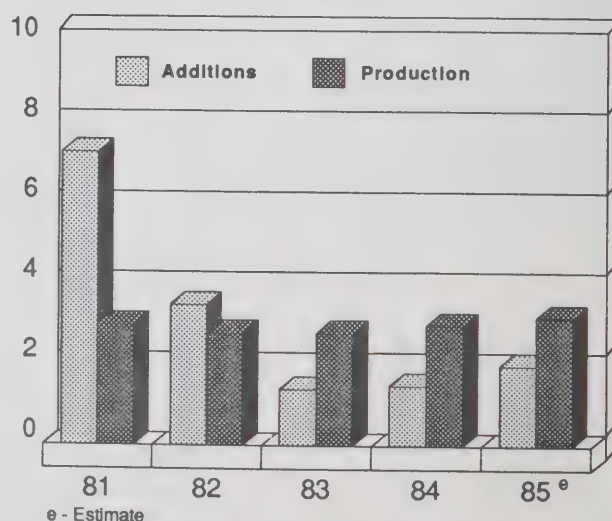


Figure 11
Natural Gas
Reserves Additions vs. Production
 (Exajoules)



Oil and Gas Reserves

The Board's estimate of remaining established reserves of conventional crude oil as of 31 December 1985 is 737.4 million cubic metres, 3.3 million cubic metres less than the December 1984 estimate.

Initial (before production) established reserves of conventional crude oil increased 67.2 million cubic metres through discoveries, extensions to reserves, and revisions to reserves estimates. Increases were recorded in British Columbia, Alberta, Saskatchewan and Manitoba.

The Board's preliminary estimate of remaining established reserves of marketable natural gas in the conventional producing areas as of 31 December 1985 is 77.4 exajoules, 1.2 exajoules lower than the December 1984 estimate.

Initial established reserves of natural gas increased 2.3 exajoules, reflecting increases in Alberta and Saskatchewan and a small decrease in British Columbia.

Review of Board Activities

Public Hearings and Inquiries

During 1986, the Board conducted all or part of 11 hearings and inquiries in locations from Vancouver, British Columbia to Fredericton, New Brunswick, for a total of 178 hearing days.

This section summarizes the major decisions issued following public hearings and provides information on other applications before the Board during 1986.

Electrical Matters

Regulation of Electricity Exports

In November 1986, the Board commenced an inquiry into the federal regulation of electricity exports.

The inquiry resulted in part from a request by the Minister of Energy, Mines and Resources that the Board report to him on the changes that might be made to reduce and simplify the regulation of electricity exports.

As part of the inquiry, a public hearing was held in November and December 1986 in Ottawa, Fredericton and Vancouver. Fifty-two parties took part in the hearing.

During the hearing, the Board heard evidence on a number of issues:

- the existence of any overlap of federal and provincial regulation and ways to reduce it;
- the method used to determine whether electricity to be exported is surplus to Canadian requirements;

- the appropriateness of the Board's current price guidelines;
- the terms of licences, now limited to twenty-five years;
- the reduction, where possible, of the information that must be supplied by applicants for licences and certificates;
- whether exports of electricity generated from imported energy sources should be exempt from regulation by the Board;
- the treatment of surplus, export price and other public interest considerations related to long-term export proposals which may involve prebuilt or dedicated facilities; and

Highlights of the Ten Major Pipeline Companies Under National Energy Board Jurisdiction

	1986 Net Plant ¹ (\$000,000)	1986 Revenue Requirement (\$000,000)	Length (Including Loops) (km)	1986 Actual Throughput
Gas				(10 ⁶ m ³)
Alberta Natural Gas Company Ltd.	13	14	176	9 560
Foothills Pipe Lines (Yukon) Ltd.	771	200	1 492	4 990
Trans Québec & Maritimes Pipeline Inc.	411	82	335	2 550
TransCanada PipeLines Limited	2 635	1 224	10 631	33 750
Westcoast Transmission Company Limited	796	261	4 435	7 600
Oil				(10 ³ m ³)
Cochin Pipe Lines Ltd.	64	20	1 125	2 350
Interprovincial Pipe Line Limited	394	184	6 055	74 570
Interprovincial Pipe Line (NW) Ltd.	342	81	868	1 510
Trans Mountain Pipe Line Company Ltd.	50	39	1 412	9 505
Trans-Northern Pipelines Inc.	46	26	847	8 290

1 Net Plant or equivalent including working capital.

Source: Preliminary Estimates obtained from the pipeline companies.

- the criteria applicable to certification of international power lines.

The Board expects to submit its report to the Minister by mid-year, 1987.

Hydro-Québec Export to New England Utilities

In December 1985, the Board received an application from Hydro-Québec for a licence to export 70 terawatt hours (70 billion kilowatt hours) of electrical energy over a 10-year period commencing in 1990 to New England Utilities. To transmit this energy, Hydro-Québec proposes to use its existing ± 450 -kilovolt, direct-current international power line which terminates at the Des Cantons Substation near Sherbrooke, Quebec.

At the end of the year, the application was still incomplete, but the Board expects this to be remedied and a hearing held in the spring of 1987.

Tolls and Tariffs

Westcoast Transmission Company Limited - Tolls

In December 1985, Westcoast filed an application for new tolls, to become effective 1 January 1986. This application resulted from the Board's decision in 1985 to change the method of determining Westcoast's tolls from the variable cost-of-service method to a fixed toll method.

By an order issued in December 1985, the Board authorized the new tolls, with some adjustments, on an interim basis.

The public hearing into the application started in March 1986 and lasted 44 days. A significant

The Year at a Glance

Natural Gas

- Issued 100 orders for short-term exports and imports and 40 for transportation of natural gas in interprovincial trade.
- Streamlined procedures to implement governments' *Agreement on Natural Gas Markets and Prices*.
- Adopted new gas export surplus determination procedures; decided, in the light of a rapidly-evolving gas market, to undertake a comprehensive review of these procedures.
- Licensed exports of 7.1 billion cubic metres of Alberta gas to New England by Shell Canada for a term of 11 years.
- Extended gas export licences of Alberta and Southern, and ProGas, for 27.5 billion cubic metres of gas which these companies would not otherwise have been able to export.

Oil

- Issued some 95 short-term oil export orders.
- Approved exports of petroleum products by Newfoundland Processing from Come-by-Chance refinery, pursuant to an imported oil processing arrangement, commencing June 1987.

Electricity

- Commenced comprehensive review of the federal regulation of electricity exports, including overlap between federal and provincial regulation.

Pipelines

- Affirmed earlier decision to permit Interprovincial Pipe Line to locate propane terminal facilities at Flamborough, Ontario.
- Approved new 540-kilometre oil pipeline from Regina, Saskatchewan to Gretna, Manitoba for Interprovincial Pipe Line; construction was almost complete at the end of 1986.
- Heard Cyanamid's application to construct a short connection between its plant and TransCanada's pipeline, "by-passing" the local distribution company's facilities; determined in January 1987 that such a pipeline is under NEB jurisdiction and approved Cyanamid's application.

- Decided that NEB has jurisdiction over a portion of the propane terminal and storage facilities operated by Dome Petroleum in Windsor, Ontario.
- Released its report, containing comprehensive recommendations to increase safety and to protect employees and the public, following an inquiry into a fatal accident in Alberta on Interprovincial's facilities.

Toll Regulation

- Reviewed availability of transportation services on TransCanada's system, subsequently enhanced access to the pipeline for gas purchased directly from producers by end users; determined that the duplication of demand charges paid by direct purchasers is inappropriate; and recommended that Alberta producers making direct sales of non-system gas bear a portion of the TOPGAS carrying charges that are paid by system producers.
- Authorized new tolls for Trans Québec and Maritimes Pipeline for 1986, reflecting a return on equity of 13.5 percent.
- Authorized new tolls for Trans Mountain Pipe Line, including a return on equity of 14.25 percent for 1986, and 14 percent for 1987.
- Authorized new tolls for Westcoast Transmission for 1986, with a rate of return on equity of 13.75 percent.

Legal

- Federal Court of Appeal dismissed application by Chippewas of Sarnia Band of Board decision authorizing pipeline construction.
- TransCanada's appeal of the Board's decision providing for new methods of toll calculation was also dismissed by the Federal Court of Appeal.
- Same Court decided that the Board does not have general jurisdiction to award costs, except as provided for in the Act in relation to detailed route hearings.

Studies

- Published a major study on the supply and demand of Canadian energy to 2005.

amount of hearing time was spent on toll design and tariff matters.

In its decision dated August 1986, the Board authorized a cost of service of \$253 million, which is \$36 million less than applied for by Westcoast. (The approved cost of service was subsequently adjusted to \$259 million.) The Board also authorized a rate of return on common equity of 13.75 percent; Westcoast had requested 14 percent.

In October, Westcoast filed an application for a review of six aspects of the Board's decision. Following receipt of comments from interested parties, the Board denied the application for review on four of the aspects, and referred the other two to the next Westcoast toll hearing. (For further information, refer to *Legal Actions*.)

In November, Amoco Canada Petroleum Company Ltd. also applied for a review of a part of the decision, which it contended would result in an overpayment by Amoco of some \$1.9 million. As of year-end, the matter was still under consideration.

In December 1986, Westcoast filed its application for tolls for 1987. In that application, the company asked that the tolls applied for be made effective, on an interim basis, 1 January 1987. The Board granted that request.

TransCanada PipeLines Limited - Availability of Services

The 31 October 1985 *Agreement on Natural Gas Markets and Prices* between the federal government and the producing provinces provided for direct sales of natural gas at prices and terms

freely negotiated between producers and distributors or large industrial users.

Paragraph 7 of the Agreement states:

- “ To enable the market responsive pricing system to operate within the intent of this Agreement, the governments request the National Energy Board to review the following concerns:
- i) whether inappropriate duplication of demand charges will result from possible displacement of one volume of gas by another; and
 - ii) whether the policy regarding the availability of T Service, as outlined in the Board's latest TransCanada PipeLines toll decision is still appropriate, taking into account, among other things, interested parties' views on the fair and equitable sharing of take-or-pay charges.”

In response to that request, the Board held a public hearing at which it also reviewed related aspects of the Board's Reasons for Decision on TransCanada's tolls dated September 1985. The hearing, which began in January and ended in April, lasted 44 days.

In its decision of May 1986, the Board determined that duplication of demand charges did result when one volume of gas was displaced by another and that such duplication was inappropriate. Duplication of demand charges occurs when a customer who previously purchased gas through a distributor arranges an alternative

supply through a direct purchase. The customer then pays demand charges to TransCanada for the transportation of its alternative supply, and is required by provincial regulatory authorities to pay the distributor the demand charges associated with the volumes displaced.

The Board decided to implement, effective 1 November 1986, a new system of toll design and cost allocation based on the establishment of “operational demand volumes” (ODV) for the purpose of determining demand tolls. The ODV level for each distributor is calculated as the contract demand (CD) specified in its CD contract with TransCanada, less the volume of all direct displacement sales occurring in its franchise area. In July 1986, TransCanada appealed this part of the Board's decision. The appeal was denied in November. (For further information, refer to *Legal Actions*.)

In addition, the Board decided that the so-called displacement proviso in the company's transportation toll schedules should be removed. The displacement proviso prevented transportation services from being made available to direct purchasers of natural gas when the volumes shipped by those direct purchasers would displace volumes previously supplied by TransCanada.

Furthermore, the Board recommended to the parties of the Agreement that Alberta producers using the TransCanada pipeline system to ship non-system gas be required, for a period of three years beginning 1 November 1986, to bear a portion of the TOPGAS

carrying charges that are paid by TransCanada system producers. TOPGAS is a consortium of financial institutions which advanced funds to TransCanada's producers for take-or-pay gas volumes not taken. This recommendation was subsequently implemented by the Alberta government.

TransCanada PipeLines Limited - Tolls

In February 1986, TransCanada filed an application for tolls to become effective 1 November 1986, with the then existing tolls to be made interim effective 1 August 1986.

The Board, having considered the views of TransCanada and interested parties, approved the interim tolls effective 1 August 1986. The Board also decided that it would be appropriate that the test year to be employed in setting tolls conform to the Company's fiscal year, which in TransCanada's case is the calendar year. Accordingly, the Board instructed TransCanada to file a revised application addressing tolls for the period 1 August to 31 December 1986 and 1 January 1987 to 31 December 1987.

The public hearing into the new tolls began on 30 September 1986 and continued into 1987. The hearing is also dealing with several other significant matters including the allocation for toll purposes of the approved cost of service of Trans Québec & Maritimes Pipeline Inc., the implementation of ODV methodology and related matters flowing from the decision on the availability of services on the

TransCanada pipeline, and various applications for final orders under subsection 59(2) of the NEB Act, requiring TransCanada to provide transportation services for certain direct purchases.

During the course of the hearing the Board issued two orders with respect to the implementation of ODV methodology. Order TG-5-86 authorized, in December 1986, the refund to distributors, for subsequent pass-through to shippers, of revenues which had been received by TransCanada from shippers, and which had been deferred up to 31 October 1986, in respect of volumes being shipped under orders issued pursuant to subsection 59(2) of the National Energy Board Act. Order TG-5-86 also provided for a further refund in January 1987 of revenues deferred between 1 November and 31 December 1986.

Order TGI-57-86 establishes, on an interim basis, the ODV's to be used for toll and tariff purposes beginning 1 January 1987. The establishment of these ODV's, together with procedures for approving ODV's in conjunction with future applications under subsection 59(2), eliminated the need to defer the double demand charge revenues received from shippers for refund at a later date.

In November 1986 the Board advised parties that, as part of the hearing, it intended to dispose of all applications for final orders under subsection 59(2). In December the Board issued amending order AO-1-RH-3-86 which set forth the procedures to be followed in order to deal with these applications by written submissions.

The Board's decision on all matters is expected before mid-year 1987.

Trans Québec & Maritimes Pipeline Inc. - Tolls

In an application dated 28 February 1986, TQM requested new tolls to become effective 1 January 1986. These were to replace interim tolls which had been authorized in December 1985.

In its toll application, TQM requested that the Board limit any public hearing to elements the Board considered not to be just and reasonable. In response, the Board decided that the rate of return issues would be dealt with at a public hearing, which would also include oral argument on all issues, and that the other issues would be dealt with via written submissions. The hearing on rate of return issues lasted four days.

In its decision, which was released in August 1986, the Board authorized a monthly toll of \$6.8 million and a rate of return on equity of 13.5 percent; TQM had requested a return on equity of 15.25 percent.

Trans Mountain Pipe Line Company - Tolls

In February 1986, Trans Mountain applied for new tolls for the transportation of crude oil and petroleum products, and requested that a public hearing be dispensed with in considering its application. In response to this request, the Board decided to deal with the application by written submissions.

The new tolls approved by the Board took effect 1 November 1986; they were approximately 4.5 percent lower than the tolls that had been in effect in 1985.

The new tolls authorized in the Board's decision of September 1986 were based on a throughput forecast for 1986 revised to reflect higher anticipated exports and a cost of service of \$40.1 million, which was \$1.7 million less than that requested by Trans Mountain.

The Board also approved an average rate of return on equity of 14.25 percent for 1986 and 14 percent thereafter. The Company had asked for 15.5 percent.

In October, Trans Mountain applied to the Board for a review of that part of its decision which pertained to the approved throughput forecast and the estimated fuel and power expenses. The application was denied.

Also in October, the Alberta Petroleum Marketing Commission asked the Board to review that part of the decision which set out the method to be used by Trans Mountain to allocate certain refunds to shippers. The Board granted the review and amended the method of refund to reflect a proposal by Trans Mountain.

Interprovincial Pipe Line Limited - Tolls

In December 1986, the Board opened a public hearing on an application by Interprovincial for new tolls to be charged for the transportation of crude oil and other liquid hydrocarbons effective 1 January 1987. In December 1986, the Board authorized interim tolls to be charged by Interprovincial effective 1 January 1987.

During the hearing, the Board also examined the suitability of Interprovincial's proposed toll design methodology for propane service from Sarnia to Millgrove, Ontario and the appropriate toll design methodology related to the potential conversion of the Sarnia-to-Montreal portion of the Interprovincial line for the transportation of natural gas liquids.

The hearing continued into 1987; a decision is expected by mid-year.

Pipeline Facilities

Cochin Pipe Lines Ltd./Dome Petroleum Limited

During October and November 1985, the Board held a public hearing to address the matter of the availability of propane terminal and storage facilities in Windsor, Ontario. Certain shippers on the pipeline operated by Cochin Pipe Lines Ltd. had concerns about their inability to gain access to the storage facilities operated by Dome Petroleum Limited. The hearing was held to provide further information to the Board so that it would be in a better position to assess its position concerning jurisdiction over the facilities, and

to examine the present and future need for storage facilities in Windsor.

In February 1986, the Board released its Reasons for Decision on the hearing, in which it decided that it had jurisdiction over a portion of the facilities at Windsor. As for the present and future need for additional storage facilities at Windsor, the Board found that the evidence as to need was not conclusive, and therefore, decided not to initiate further action. (For further information, refer to *Legal Actions*.)

Interprovincial Pipe Line Limited - Flamborough

In May 1983, the Board approved an application by Interprovincial Pipe Line Limited which permitted Interprovincial, among other things, to locate propane terminal facilities in the Flamborough area, near Burlington, Ontario.

Later in 1983, the Board held a public hearing in response to concerns raised by authorities and landowners in the Flamborough area over the location of the facilities. Hearings continued in 1984, with delays in the proceeding arising from legal matters before the Federal Court of Appeal and the Supreme Court regarding the Board's jurisdiction in the matter and the alleged bias of the Board's hearing panel.

After judicial proceedings were dismissed, the Board continued hearings in Burlington, Oakville, and Ottawa, Ontario in the spring and summer of 1985.

In January 1986, the Board released its Reasons for Decision on the hearing. In its report, the Board affirmed its earlier decision

on the location of the propane facilities in the Flamborough area.

On 7 February 1986, the Board received notice of an application for leave to appeal (Refer to *Legal Actions*.)

In a related matter, in October 1985, the Board referred to the Federal Court of Appeal the question of the Board's jurisdiction to award costs, payable by Interprovincial, to several parties to the hearing.

In June 1986, the Federal Court of Appeal rendered its decision on the awarding of costs (For further information, refer to *Legal Actions*).

Interprovincial Pipe Line Limited - Expansion

In November 1985, Interprovincial filed an application to upgrade lines 1 and 3 of its pipeline system between Regina, Saskatchewan and Gretna, Manitoba to meet projected throughput demand in 1988 and beyond.

The expansion program on line 1, which transports refined and high vapour pressure products, included the installation of a new 540-kilometre line from Regina, Saskatchewan to Gretna, Manitoba and additions and modifications to existing pumping stations. On line 3, which transports light, medium, and heavy crude oil, extensions would be added to five of the existing loops, totalling eight kilometres.

A hearing on the application was held in February 1986. The Board's Reasons for Decision approving the application were released in May 1986.

Cyanamid Canada Pipeline Inc. - Facilities

In August and September 1986, the Board held a public hearing on two facilities applications by Cyanamid Canada Pipeline Inc., a wholly owned subsidiary of Cyanamid Canada Inc. Cyanamid Pipeline applied pursuant to section 49 of the Act for authorization to construct a six-kilometre pipeline from the TransCanada pipeline at Black Horse Station to the Cyanamid plant near Welland, Ontario. This facility would effectively bypass the facilities which are owned and operated by The Consumers' Gas Company Ltd. currently servicing the Cyanamid plant. Cyanamid Pipeline also applied pursuant to subsection 59(3) of the Act for an order of the Board directing TransCanada to connect its pipeline to the proposed Cyanamid pipeline.

The two principle issues addressed during the hearing were the question of whether the Cyanamid pipeline was within the Board's jurisdiction and, if so, whether the bypass proposal had merit from a public interest perspective.

The Board's Reasons for Decision had not been released by the end of the calendar year.¹

Natural Gas Exports

Surplus Determination Procedures

In late 1985 in Calgary and in Ottawa, the Board held Phase 1 of the 1985 Gas Export Omnibus Hearing. Phase I was concerned with the procedures the Board uses to determine the surplus of

natural gas in Canada available for export.

In May 1986, the Board released its Reasons for Decision on the hearing; in that report it decided to adopt a new surplus determination procedure, the Reserves to Production Ratio procedure.

The calculation of the maximum potential surplus in the procedure is based on maintaining a ratio of 15 between reserves and total annual production. The procedure incorporates estimates of annual additions to reserves and forecasts of both Canadian demand and exports under existing authorizations. It also involves an assessment of future annual productive capacity.

The Board did not proceed with subsequent phases of the Omnibus Hearing; however, as detailed elsewhere in this Annual Report, natural gas export applications have been examined by the Board on a case-by-case basis.

Subsequently, by letter dated 29 October 1986, the Minister of Energy, Mines and Resources asked the Board, pursuant to section 22, Part II of the National Energy Board Act, to advise him of the implications for its surplus determination procedures of

1. The Board's Reasons for Decision dated December 1986 were issued in January 1987. In its decision the Board found that it had jurisdiction over the proposed pipeline and, although it was reluctant to authorize the duplication of existing facilities, it found the bypass to be in the public interest. In February 1987, Union Gas Limited and The Consumers' Gas Company Ltd. appealed the Board's decision to the Federal Court of Appeal.

changing conditions in Canadian natural gas markets and the action the Board was prepared to initiate in respect of those procedures to take account of a rapidly evolving market environment.

By letter dated 4 November 1986, the Board informed the Minister of its decision to undertake a comprehensive review of its established natural gas surplus determination procedures.

By letter of 18 December 1986, the Board announced the issues that it would like addressed and the dates for written submissions. The Board plans to hold an oral session as part of its review in the spring of 1987.

Petro-Canada Inc.

In an application dated 21 April 1986, Petro-Canada Inc. requested a licence to export natural gas to California. A hearing on the application was scheduled to begin in Calgary on 17 June 1986.

By letter dated 10 June, Petro-Canada notified the Board that it was still finalizing commercial arrangements and, as a consequence, its original application might be substantially altered. The hearing was cancelled on 12 June 1986.

Alberta and Southern Gas Co. Ltd. - Consolidation and Extension of Gas Export Licences

Alberta and Southern Gas Co. Ltd. requested a new licence to consolidate seven of its existing licences and to extend to 31 October 1994 natural gas exports authorized under the new consolidated licence to recover "trapped gas" (quantities

authorized for delivery during an early period but not exported).

A public hearing on the application was held in September 1986. The Board released its Reasons for Decision in November 1986 by which it approved the application.

ProGas Limited - Consolidation and Extension of Gas Export Licences

In an application dated March 1986, ProGas Limited requested that two of its existing licences be consolidated and that the term of the exports under the new licence be extended from 1989 to 1994 to recover trapped gas. The extension would not change the total term quantity authorized under the existing licences, which is 18.9 billion cubic metres.

In June 1986, the Board approved the consolidation of the two licences. A public hearing was held in September 1986 on the extension of the new licence.

In October 1986, the Board issued its Reasons for Decision in which it approved the extension of the new consolidated licence.

Shell Canada Limited - Gas Export Licence

In June 1986, Shell Canada Limited requested a licence to export natural gas at Niagara Falls, Ontario and Highwater, Quebec for a term of 11 years and five months and for a maximum term quantity of 7.1 billion cubic metres.

The Board held a hearing on the application in October 1986 and released its Reasons for Decision in November 1986 by which it decided to issue the requested licence to Shell.

The associated application to convert the Portland-Montreal pipeline to transport natural gas was the subject of a separate application by Shell and was approved by the Board in December 1986.

ProGas Limited - Export Licence

In November 1986, the Board set down for public hearing in January 1987 an application by ProGas Limited for a new licence to export natural gas to Ocean State Power over about a 20-year period at Niagara Falls, Ontario. The gas would be used to fuel a new combined cycle electrical generating plant that Ocean State is proposing to build at Burrillville, Rhode Island. The quantity to be exported would be up to 517 million cubic metres per year commencing May 1989. A decision on the ProGas application is expected early in 1987.

Venture Gas Project - Gas Export

In July 1985, the sponsors of the Venture Gas Project, Mobil Oil Canada Ltd., Petro-Canada Inc., Texaco Canada Resources Ltd., and Nova Scotia Resources (Ventures) Limited, submitted applications for licences to export natural gas from the Sable Island area to the northeastern United States.

After considering the views of interested parties, the Board decided in August to conduct the hearing of these applications separately from the 1985 Gas Export Omnibus Hearing described earlier.

The Venture Gas Project applications, as filed, are not complete. The Board is awaiting further information from the applicants before proceeding to hear the applications.

Alberta Northeast Gas Export Project

In November 1986, Alberta Northeast Gas, Ltd., in joint applications with each of TransCanada PipeLines Limited, ProGas Limited, ATCOR Ltd., and AEC Oil and Gas Co., asked the Board to consolidate and extend three existing natural gas export licences and to issue new licences for exports to the northeastern United States.

In their applications, the companies are seeking the Board's approval to export some 61 billion cubic metres of natural gas to 19 gas distribution companies located in the New England, New York and New Jersey market areas. Exports would be for a 15-year period, starting 1 November 1988. At present, 31 billion cubic metres of the total volume are authorized for export under Licences GL-84, GL-85 and GL-88 currently held by TransCanada.

The natural gas would be exported at Niagara Falls and Iroquois, Ontario.

The Board will hold a public hearing on the applications in February 1987.

An application by TransCanada for approval of additional facilities, including a pipeline to transmit the gas from Iroquois to the international border, is expected to

be filed with the Board at a later date. The estimated cost of these and other facilities is \$250 million.¹

Inquiries

Interprovincial Pipe Line Limited - Camrose, Alberta Accident Inquiry

In February 1985, an accident on Interprovincial's pipeline system near Camrose, Alberta resulted in the death of two employees and injuries to three others as a result of the ignition of natural gas liquids leaking from the pipeline.

The Board's inquiry was held in Edmonton, Alberta, in March and October 1985.

In July 1986, the Board released its report on the inquiry which contained specific recommendations to increase safety and to protect company employees and the public during the construction and operation of pipelines under the Board's jurisdiction. The recommendations apply as well to all pipeline companies under the Board's jurisdiction.

In October 1986, Interprovincial applied for and was granted a review of one of the recommendations, recommendation 5.9, and a stay of the Board's adopting the recommendation.

The recommendation requires pipeline companies under the Board's jurisdiction to remove all pipeline welds in certain circumstances and to check the soundness of a sample of welds in

other circumstances. In its reply to the application for review, the Board stated that its preferred method of review was a hearing and asked Interprovincial as well as other companies to comment on this method or provide suggestions regarding alternative methods.

In December 1986, the Board decided to proceed with the review by means of a technical conference and reserved the right to hold a hearing at a later date.

TransCanada PipeLines Limited - Inquiry into Accident in Oshawa, Ontario

In October 1985, an explosion caused by an accidental rupture of TransCanada's natural gas pipeline near Oshawa, Ontario resulted in one fatality and three injuries. The deceased and injured were members of a work crew performing drain tile installation near the pipeline.

The Board conducted an inquiry into the accident in April 1986. In its report, the Board concluded that the accident was caused by insufficient regard for established procedures and a relaxation of attentiveness on the part of the TransCanada field representative. The report also raised issues concerning the regulation of crossings of pipelines under the Board's jurisdiction. As a result, the Board is examining its regulations in this regard and anticipates further consultation with the pipeline and utilities industries.

1. TransCanada's application was received in mid-January 1987. The estimated cost of the facilities is \$267 million.

As a result of the accident, TransCanada examined its operating procedures for crossings and has since amended them with a view to eliminating similar incidents in the future.

Sun Pipe Line Company - Inquiry into Accident near Sarnia, Ontario

In October 1986, an accident on the Sun products pipeline near Sarnia, Ontario resulted in injuries to four persons who were working on the site. The line was ruptured and the butane ignited. Two private residences near the site caught fire.

The Board will conduct a public inquiry into the accident in February 1987.

Other Board Activities

Oil

Since 1 June 1985, the effective date of the *Western Accord*, oil exports have been authorized by Board orders which specify neither volumes nor prices. During 1986, the Board renewed export orders to some 75 companies and issued new orders to 20 companies for the export of light and heavy crude oil and petroleum products. The Board continues to monitor actual export volumes and prices.

In November, Newfoundland Processing Limited applied for authorization to export petroleum products produced pursuant to an imported oil processing

arrangement at the Come-by-Chance refinery. The Board issued an order to cover exports between June and December 1987, the start-up period of the refinery, and recommended to the Governor in Council that five-year export licences be issued commencing 1 January 1988.

Natural Gas

Changes in Procedures for Natural Gas Exports

On 29 October 1986, the Minister of Energy, Mines and Resources announced a change in natural gas export price procedures affecting both short-term orders and long-term licences. These were solely procedural changes and did not affect the principles of the October 1985 *Agreement on Natural Gas Markets and Prices*.

The most significant change in procedures was that export prices no longer require prior approval before they are implemented. Rather, export prices are monitored after the fact by a committee of federal and provincial advisors to ensure that the existing pricing criteria continue to be met. These criteria state that the export arrangement must recover all Canadian-incurred costs and that the price of exported gas must not be less than the price charged to Canadians for similar service in the area or zone adjacent to the export point.

With respect to long-term licence arrangements, licence-holders must continue to file with the Board any new or amended sales contracts under subsection 35(2) of the Part VI Regulations and

approval of these must be obtained prior to the commencement of delivery of gas under the terms of an original or amended contract.

Under the revised procedures pertaining to long-term licences, the Board reviews applications for new or amended contracts to determine whether these contracts provide for adjustments to reflect changing market conditions; whether the contracts provide reasonable assurance that the gas contracted will be taken; and whether the export arrangement has received the necessary producer and producing province support. The Board no longer seeks the views of interested parties with respect to contract approvals, but it does continue to take account of any relevant views expressed directly to it.

The procedures relating to short-term export orders remain unchanged except that an applicant need not obtain prior approval of the initial price or of any subsequent changes thereto.

During the 1985-86 licence year, a small volume of exports was sold under the Volume Related Incentive Pricing (VRIP) program. On 1 November 1986, the VRIP program ended and those companies previously using the scheme began exporting at negotiated prices.

Changes in Procedures for Domestic Sales of Natural Gas

The implementation of market-responsive pricing for gas sales in Canada, which became effective 1 November 1986, resulted in changes to the Board's responsibilities for natural gas

pricing regulation under the Energy Administration Act. These changes, together with changes to the National Energy Board Part VI Regulations, are discussed in *Legislation and Regulations*.

Propane and Butanes

In 1986, the Board continued to authorize exports of propane and butanes through the issuance of export orders and licences. No quantity restrictions are placed on exports of propane and butanes under export orders. However, to ensure that supplies of propane and butanes are adequate to meet domestic requirements, the Board continued to monitor Canadian supply and demand, and export quantities. Although no export price restrictions are in place, the Board also monitored export prices.

Ethane

For purposes of export regulation, ethane is subject to the same criteria as is natural gas. No licences or orders were issued for the export of ethane during 1986.

Electrical Activities

During 1986, the Board continued to act in its advisory role, consulting with and contributing to the operation of other government departments and industry groups which coordinate the reliable operation of electric power utilities in Canada and the United States.

Among other activities, the Board provided a number of electrical utilities with copies of its CANABEX computer program which calculates the long-term economic benefits of economy energy interchanges between power systems. Work was also

started on the development of an improved version of the program which will consider up to five systems operating simultaneously.

Energy Studies

A major study of the prospects for the supply and demand of Canadian energy to the year 2005 was carried out by Board staff during the year. *Canadian Energy: Supply and Demand, 1985 - 2005*, released in December 1986, projects the Canadian supply of all major energy commodities, with emphasis on electricity, oil and natural gas, and the by-products of oil and natural gas, and the demand for Canadian energy in Canada and in export markets. The report reflects changing perceptions of future energy prices, economic activity, the availability of energy supplies, and changes in government policies. In conducting its study, Board staff benefitted from consultations with provincial governments, industry and other interested parties.

The analysis in the report was conducted under two price scenarios because uncertainties in the world oil market make it particularly difficult to project a single price path. In the high price case, crude oil prices are assumed to increase to \$U.S. 27 (1986\$) per barrel by 1993 and remain unchanged in real terms after that; in the low price case, prices increase to \$U.S. 18 (1986\$) by 1992 and then remain constant.

The report states that prices are likely to fluctuate from year to year but are unlikely to remain outside the projected range for sustained periods of time. The actual path of oil prices could also be a composite of the two projections,

for example, close to the low path in the earlier years but drifting up over time toward the high path.

The major findings of the study are:

- Reserves of light crude oil from conventional sources are declining and, if prices remain low, there could be a need to import substantial amounts of light oil during the 1990s. If oil prices rise, the country will have to rely much less heavily on imports. In that event, it may become viable to produce oil in the frontier regions and to upgrade heavy crude oil and bitumen to light oils. In both price scenarios, Canada continues to export heavy crude oil throughout the review period.
- In both the high and low price scenarios, supplies of natural gas in western Canada are declining, but are sufficient to meet domestic demand and currently authorized exports until about the year 2000. At that time, further changes in market forces will need to occur to hold supply and demand in balance. If prices are low, the decline in supply over the projection period will be more severe; if they are high, there will be more supply and larger quantities available for new exports.
- Demand for electricity will grow over the review period and will likely prompt the construction of new generating plants to meet both domestic and export demand.
- Domestic demand for coal, used mainly for the thermal

generation of electricity, will increase over the review period.

- The use of alternative energy forms including wood, wood wastes, and wind and solar power will also increase but their share of total energy use is unlikely to increase because they will cost more than conventional energy forms.

Pipeline Activities

The Board regulates 40 gas, oil, and products pipeline companies. These pipeline systems are shown in Figures 12 and 13.

All new pipeline facilities must be authorized by the Board prior to their construction. The appendices relating to gas and oil at the back of this report list the orders and certificates issued in this regard in 1986.

The Board is also responsible for monitoring the construction and operation of pipeline facilities to ensure compliance with the Board's safety and environmental regulations and any specific conditions of the approving order or certificate. In addition, the Board reviews construction and operation costs to ensure that the tollpayer receives cost-effective service.

Approvals

Interprovincial Pipe Line Limited continued its expansion program launched in 1985, which was aimed at increasing the capacity and flexibility of its system in western Canada. The new facilities approved include some additions and modifications to existing pump stations, the replacement of

an existing line with a new 538-kilometre pipeline from Regina, Saskatchewan to Gretna, Manitoba, some two kilometres of loop between Gretna and the international boundary, as well as five extensions to the existing loops on Line 3. Installation of the pipe began in mid-July and was completed by November. The new pumping facilities will be completed in 1987.

Westcoast Transmission Company Limited received approval to build the 32-kilometre Sikanni Pipeline, a meter station and related facilities. The Sikanni pipeline is located in the Pink Mountains area in British Columbia. The new line, located about 170 kilometres northwest of Fort St. John, B.C., allows the gas produced in the South Sikanni region to be injected into the Fort Nelson mainline.

The Board approved an application by Polysar Hydrocarbons Limited to install two kilometres of new pipe, which forms part of a 12-kilometre pipeline extending from the Consumers Power gas reforming plant in Marysville, Michigan to the Petrosar Limited petrochemical refinery in Corunna, Ontario. The work was completed in November and included a crossing of the St. Clair River that was installed by directional drilling. Subsequent to the Board's approval, the Chippewas of Sarnia Band requested the Board to rescind its approval. That application was denied. (Refer to *Legal Actions*.)

TransCanada PipeLines Limited was given conditional approval to construct additional facilities on its Niagara Line to accommodate increased exports of natural gas to

Boundary Gas Inc., Tennessee Gas Pipe Line Company, and KannGaz Producers Ltd. The new facilities would comprise a pipeline loop and compression and metering equipment.

Canadian Hunter Exploration Limited received approval for, and completed construction of, a 29-kilometre pipeline connecting the British Columbia Deep Basin Area to the Elmworth gas plant in Alberta.

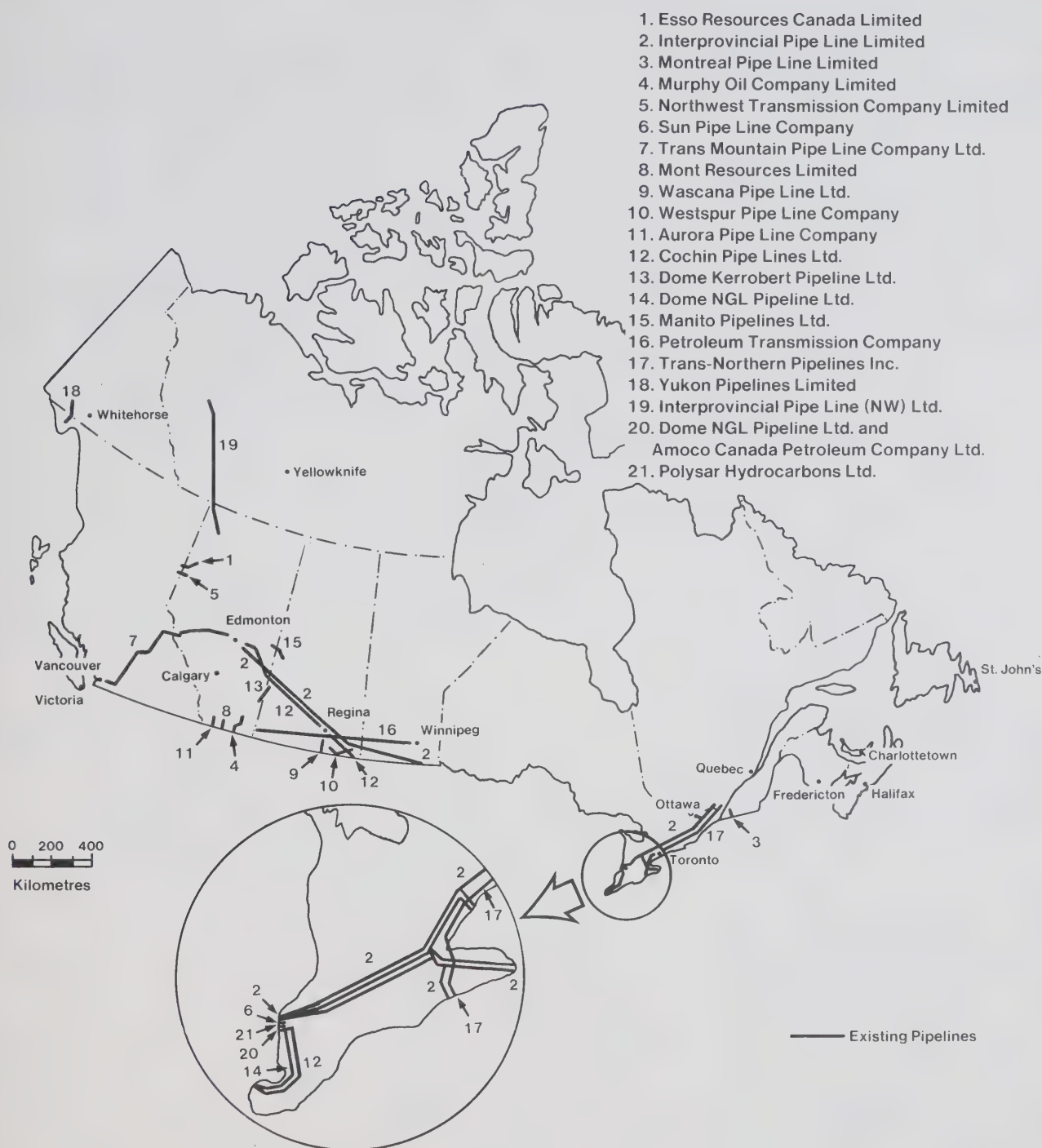
The Board also approved new gas receipt or delivery facilities in a total of seven locations for Peace River Transmission Company Limited, Westcoast Transmission Company Limited, Foothills Pipe Lines (Yukon) Limited and TransCanada PipeLines Limited. In addition, the Board approved various other applications dealing with pipeline replacements and modifications to existing pipeline facilities.

In addition to approving new construction, the Board conducted a review in 1985 related to its jurisdiction over the Westridge propane facility, owned by Trans Mountain Pipe Line Company Ltd. In January 1986, the Board informed Trans Mountain that it decided that it did not have jurisdiction over the propane facility.

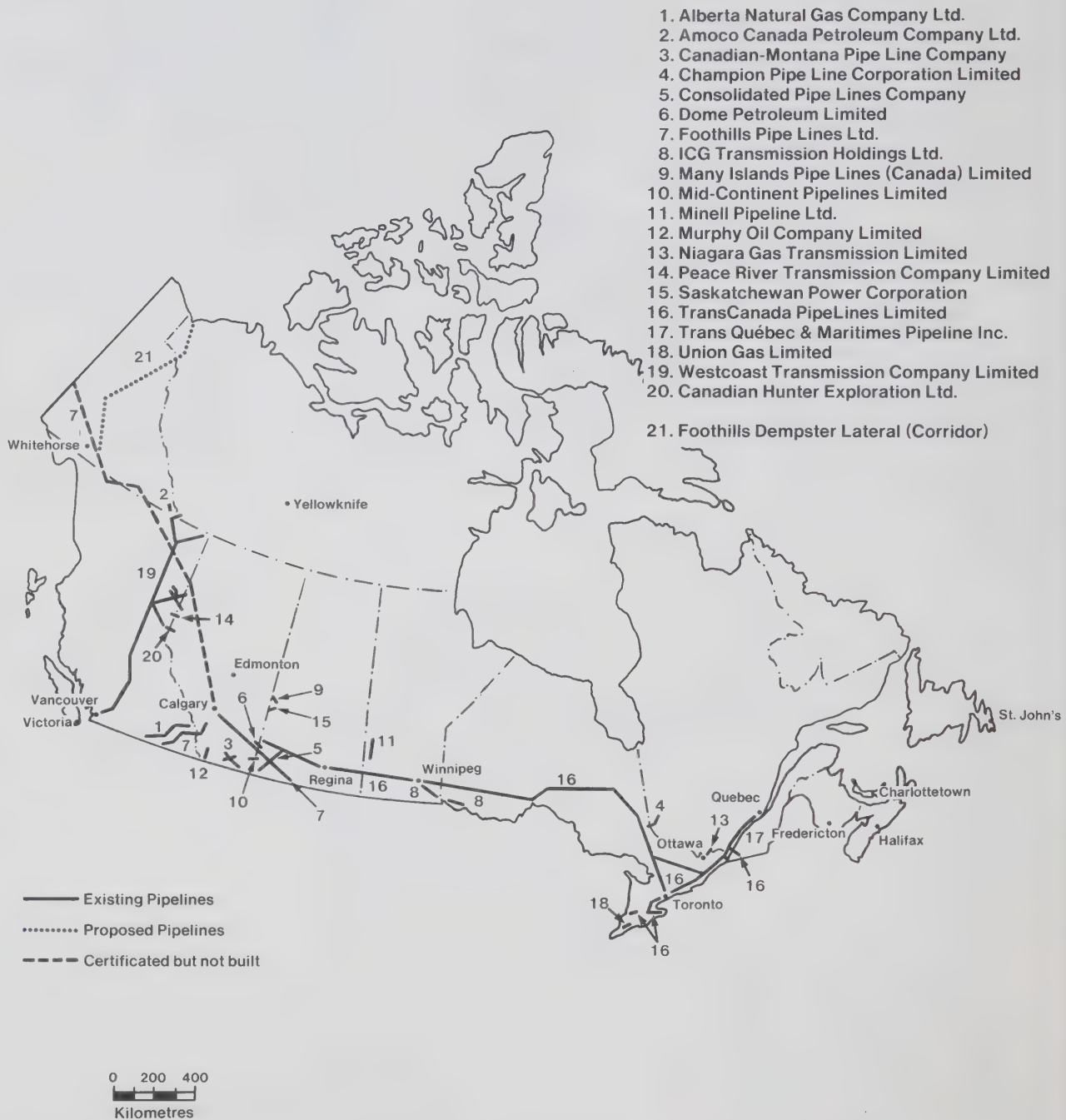
In January 1986, Canada LNG withdrew its application to construct and operate facilities to manufacture liquefied natural gas (LNG) for export to Japan and the associated pipeline, because the Japanese buyers and Canadian companies had agreed to abandon the project.

Figure 12

Oil and Oil Products Pipeline Companies Regulated by the National Energy Board



Gas Pipeline Companies Regulated by the National Energy Board



Pipeline Incidents

The Board requires detailed reports of all incidents involving personal injury or fatality, pipeline malfunctions such as a leak, break, fire, or explosion, or any other event which results in a loss of service of a pipeline under its jurisdiction. The Board conducts public inquiries, as appropriate, to ascertain the cause of the incident and, when necessary, to establish specific measures to prevent a recurrence of that type of incident. These reports and inquiries are considered when revising pipeline safety and operational standards and regulatory requirements.

When a pipeline is damaged, the Board ensures that steps are taken to contain spills of hydrocarbons to provide protection to the public and to property, and to repair the damaged pipeline and return it to service as quickly as possible. The Board continues its surveillance of the site to ensure the effectiveness of the company's environmental rehabilitation program.

Table 7 shows the causes of pipeline incidents for the period 1982 to 1986. A total of 28 incidents occurred in 1986.

Utility Crossing and Infringements

All utility construction affecting pipelines regulated by the Board require its approval. Proposed activities must meet the standards ensuring safe construction practice.

In 1986, 710 applications relating to crossings or infringements were approved by the Board.

Routine Inspection

Throughout 1986 the Board continued its program of routine inspections of the operation, maintenance and safety practices of pipeline companies. These inspections are designed to help ensure that pipelines are operated and maintained in accordance with existing regulations and standards, thereby providing for the safety of the public.

Environmental Matters

Environmental Protection

The construction and operation of pipelines and power lines can have a variety of negative effects on the environment. The Board, therefore, ensures that the environment is properly protected by evaluating the environmental portions of an application for completeness and accuracy, and carefully auditing all phases of project planning, development and operation. For major projects, companies must submit post-construction environmental monitoring reports documenting the mitigative measures implemented during construction and the recovery of the right-of-way following construction.

In 1986, the Board carried out environmental inspection during the construction of the Interprovincial Pipe Line Limited expansion project on line 1 from Regina, Saskatchewan to Gretna, Manitoba and the Westcoast Transmission Company Ltd. Sikanni pipeline in northeastern British Columbia. The Board found the projects had been constructed in an environmentally acceptable manner, using proper mitigative and restorative techniques. The companies will continue to implement any required remedial action and will monitor the right-of-way next summer, and submit environmental monitoring reports in December 1987.

Board inspectors also examined the facilities of recently completed projects. During the summer of 1986, the Board inspected the post-construction condition of the Interprovincial Pipe Line(NW) Ltd.

Table 7
Causes of Pipeline Incidents 1982-1986

	1982	1983	1984	1985	1986
Defective Welds	3	6	4	5	0
Material Failures	1	2	10	4	5
Third Party Damage	8	4	5	6	3
Corrosion	8	7	6	5	10
Miscellaneous	11	14	9	11	10
Total	31	33	34	31	28

Norman Wells pipeline and Hydro-Québec's ± 450 -kilovolt, direct-current international power line from its Des Cantons substation to the international border. The recovery of the right-of-way continues to improve with few significant environmental impacts resulting to date from the construction or operation of the projects. On-going monitoring and surveillance programs will ensure that the development of any site-specific concerns are addressed.

In addition, the Board inspected existing pipeline facilities to monitor the environmental condition of the right-of-way. Also, the assessment of incident sites and the monitoring of their restoration, along with the investigation of landowner complaints, formed an integral part of the Board's environmental program.

Along with regulating pipelines and international power lines, the Board also monitors the operation of associated facilities such as gas plants and oil storage loading terminals for compliance with environmental requirements. In 1986, the Board continued its involvement with odour emission abatement at the Trans Mountain Pipe Line Company Ltd. Westridge Terminal by monitoring the loading of sour crude onto oil tankers. The Board also reviewed Trans Mountain's study of odour emission abatement measures for its Burnaby oil storage terminal and its Westridge oil loading terminal on Burrard Inlet, British Columbia.

Land Matters

Detailed Route Hearings

During 1986, the Board dealt with two applications where new right-of-ways were required. Those applications were received from Interprovincial Pipe Line Limited for Phase III of its expansion program and from Manito Pipelines Ltd. for its Bodo-Cactus Lake pipeline. Although the complete notification procedures for local hearings were implemented, no objections were received for either project. As a result, no detailed route hearings were held in 1986.

The Board exempted several other projects from route hearings where new lands were required. In each case, the company provided sufficient evidence that all necessary lands had been acquired.

Native Land Claims

North of 60° latitude, the federal government has been negotiating the settlement of comprehensive native land claims. Those land claims, which involve areas of significant proven and potential gas and oil reserves, include: the Western Arctic Claim, affecting the Mackenzie Delta; the Council of Yukon Indians, affecting the Yukon Territory; the Dene-Metis Claim, affecting the Mackenzie Valley; and the Tungavik Federation of Nunavut, affecting the Eastern and High Arctic. The Western Claim was concluded in 1984. The Board has continued to monitor the claims negotiations and remained involved in those areas of negotiations where the Board has jurisdiction in pipeline development.

Financial Regulatory Matters

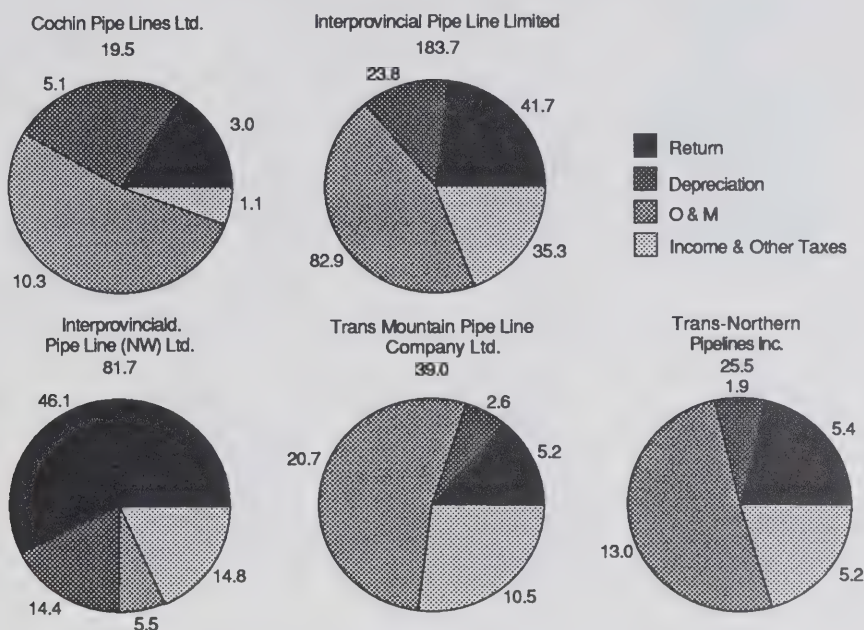
During 1986, a number of major public hearings were held to determine just and reasonable tolls for pipelines. For gas pipelines, this involved the examination of issues related to the requirement for open access to natural gas markets and the introduction of direct sales arrangements between producers and end-users. Details of these hearings are provided earlier in this chapter.

The Board continued to monitor the financial performance and accounting practices of the ten major Group 1 pipeline companies through the analysis of surveillance reports and the Board's ongoing audit program. As a result of its decision in 1985 to reduce the regulatory burden on the smaller Group 2 pipeline companies, the Board monitored the financial results and accounting practices of these Group 2 pipeline companies, by analyzing their year-end financial statements. The 1986 financial data for the Group 1 pipeline companies are found in Figures 14 and 15. Figure 16 illustrates the returns earned by the pipelines in 1986.

Because of the trends in interest and inflation rates prevailing in 1986, the Board decided to review the rate of return on equity earned by Foothills Pipe Lines (Yukon) Ltd. The tolls that were in place at the time were made interim, effective June 1986. As a result of its review, the Board reduced the rate of return on equity from 16.0 to 14.25 percent; the company had requested 15.5 percent.

Figure 14
Group 1 Oil Companies
(Millions of Dollars)

Transportation Cost of Service



Rate Base and Captilization

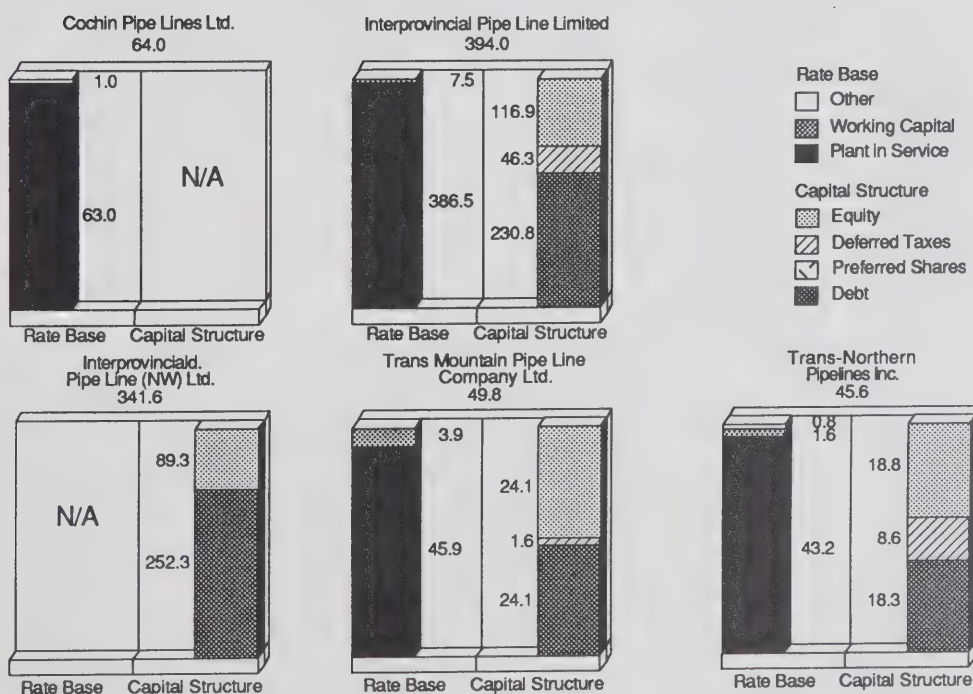
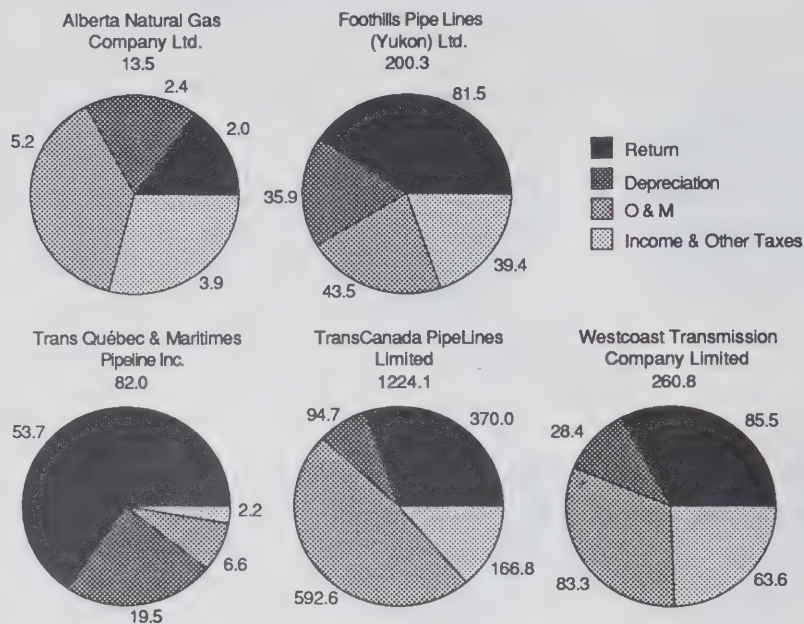
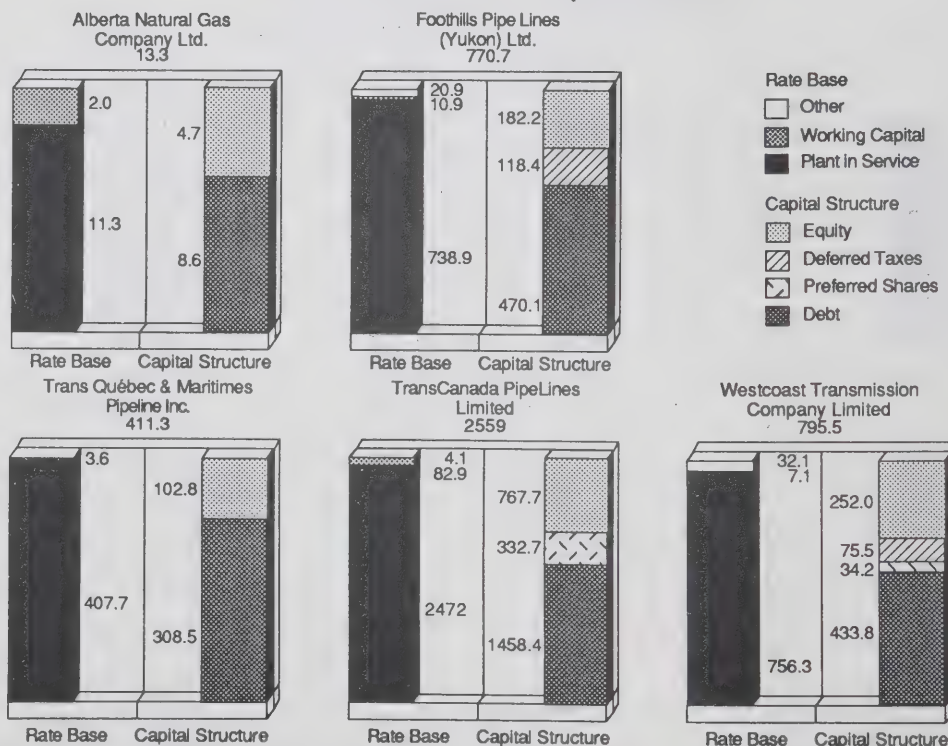


Figure 15
Group 1 Gas Companies
(Millions of Dollars)
Transportation Cost of Service



Rate Base and Capitalization



The Board decided to also review the rate of return earned by Alberta Natural Gas Company Ltd. The Board informed the company of its intent in July 1986, at the same time making the company's tolls interim. As a result of its review, the Board reduced the rate of return on equity from 15.0 to 13.25 percent; the company had requested 14.5 percent.

As a separate matter, in 1986, the Board authorized for the first time the establishment of tolls for interruptible transportation service on the Alberta Natural Gas pipeline.

Also in 1986, the Board decided to regulate the tolls of Cochin Pipe Lines on a complaint basis, thereby reducing the degree of regulation applicable to the company. However, Cochin is required to maintain its accounting records in accordance with the Uniform Accounting Regulations and to continue submitting

quarterly surveillance reports to the Board.

The Board also required TransCanada to move to a calendar year test year to conform with the company's fiscal year.

Under the provisions of the Energy Administration Act, the Board is responsible for the collection of export charges levied on crude oil and bulk petroleum product exports. Although the program effectively ended during 1985, the Board is still in the process of auditing these charges. During 1986, additional assessments collected from these exports totalled \$1.5 million.

The Board is also responsible for audits of the Transportation Fuel Compensation Recovery Charge Program. The program ended in 1983, but audits conducted by the Board and assessments and refunds arising from them, continued in 1986. During the year,

the net amount resulting from Board Orders was the net refund of \$1.3 million.

Legal Actions

This section outlines appeals of Board decisions and a reference made by the National Energy Board to the Federal Court of Appeal, and prosecutions in the Criminal Courts. The facts that gave rise to these actions can be found in *Public Hearings and Inquiries* and *Pipeline Activities*.

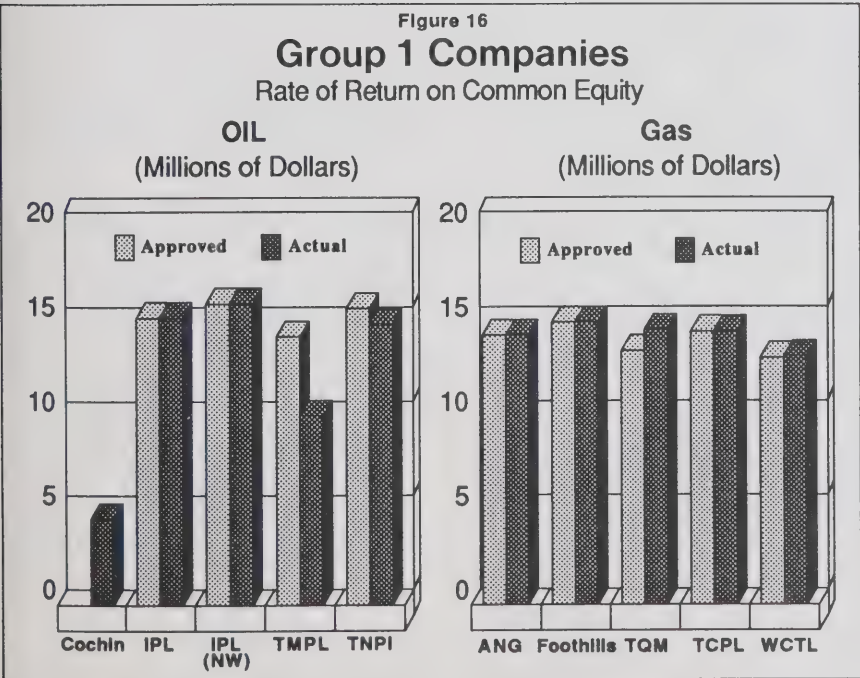
Dome/Cochin and Minister of Energy for Ontario

In March 1986, Dome Petroleum Limited and the Minister of Energy for Ontario filed with the Federal Court of Appeal applications under subsection 18(1) of the National Energy Board Act for leave to appeal the Board's 6 February 1986 decision that the Board has jurisdiction over ethane storage caverns located in Windsor, used to store product shipped on the Cochin pipeline. Dome also filed an application under subsection 28 of the Federal Court Act for an order of the Court setting aside the same decision.

The applications for leave were argued before the Court on 27 May 1986 and leave to appeal was granted. Dome has since filed a notice of motion requesting that its section 28 application be consolidated with the applications for leave to appeal as granted.

The Federal Court decided to hear the consolidated appeals on 12 January 1987.¹

1. On 17 February 1987, the Federal Court of Appeal issued its decision dismissing the appeals.



***Chippewas of Sarnia Band and
Polysar Hydrocarbons Limited***

In May 1986, the Chippewas of Sarnia Band filed with the Federal Court of Appeal an application under subsection 18(1) of the National Energy Board Act for leave to appeal the Board's 7 April 1986 section 49 order authorizing the construction, by Polysar Hydrocarbons Limited, of a proposed natural gas liquids pipeline and two spare river crossings in the Sarnia area.

In November 1986, the Chippewa Band also filed with the Federal Court of Appeal a notice of motion requesting a stay of the section 49 order. The Court heard the motion for stay and dismissed it on 13 November 1986.

The application for leave to appeal was heard and dismissed on 8 December 1986.

TransCanada PipeLines Limited

In July 1986, TransCanada PipeLines Limited filed with the Federal Court of Appeal an application under subsection 18(1) of the National Energy Board Act for leave to appeal the Board's May 1986 decision to use a deferral account mechanism and operational demand volume method in the calculation of TransCanada's tolls.

The application for leave was heard in August and leave to appeal was granted.

The appeal was heard on 21, 22, and 23 October 1986 and the Court issued its decision, dismissing the appeal, on 14 November 1986.

***Corporation of the Township of
Flamborough and the Regional
Municipality of
Hamilton-Wentworth***

In February 1986, the Township of Flamborough and the Regional Municipality of Hamilton-Wentworth filed with the Federal Court of Appeal an application, under subsection 18(1) of the National Energy Board Act, for leave to appeal the Board's December 1985 decision on the location of propane terminal facilities of Interprovincial Pipe Line Limited in the Flamborough, Ontario area.

The application for leave was heard by the Court and on 2 April 1986 the Court granted leave to appeal on two grounds relating to the imposition of terms and conditions in the section 49 order implementing the Board's decision.

At year-end, the Federal Court had not yet decided when it would hear the appeal.

***Westcoast Transmission
Company Limited***

In October 1986, Westcoast filed with the Federal Court of Appeal an application under subsection 18(1) of the National Energy Board Act for leave to appeal the Board's August 1986 decision respecting Westcoast's tolls as well as an application under section 28 of the Federal Court Act for an order of the Court setting aside portions of the same decision.

By year-end, the Court had not yet decided when it would hear these applications.

Awarding of costs

During a hearing that reviewed the Board's decision to permit

Interprovincial Pipe Line Limited to locate propane terminal facilities in the Flamborough, Ontario area, several parties asked that the Board make an award of costs, payable by Interprovincial, in their favour. By letter dated 17 October 1985, the Board referred the question of the Board's jurisdiction to award costs in this hearing to the Federal Court of Appeal.

The reference was heard in April 1986 and, in June, the Federal Court of appeal issued its decision that the Board did not have a general jurisdiction to award costs and could do so only as specified in the National Energy Board Act in relation to a detailed route hearing.

In September 1986 the Flamborough Residents Against Propane filed with the Supreme Court of Canada an application for leave to appeal the Federal Court of Appeal's decision. The application for leave was heard on 25 November and was dismissed in December 1986.

***Canadian Pacific Airlines
Limited and Wardair Canada
(1977) Ltd.***

Actions brought by Canadian Pacific Airlines Limited and Wardair Canada (1977) Ltd. in the Federal Court, Trial Division, against the Attorney General of Canada and the Board remained essentially dormant. The airlines are seeking declarations regarding the validity under the National Energy Board Act of the export licensing and prescription of minimum export prices for jet fuel consumed by those airlines on international flights from May 1981 to April 1983.

Collection of Export Charges and Unlicensed Exporters

As part of its duty under the Energy Administration Act to administer the collection of charges on oil exported from Canada, the Board assisted the Department of Justice in legal actions to collect unpaid export charges. Judgments were obtained in two such actions, one in 1984 and one in 1985. During the year, enforcement procedures on these judgments continued.

Prosecutions relating to illegal exports of oil were commenced, some of which resulted in convictions and some of which are still continuing.

Legislation and Regulations

The following section outlines changes that were made during 1986 to the acts, regulations, or rules under which the Board operates. The Board's quarterly Regulatory Agendas provide additional detail on this subject.

Amendments to the National Energy Board Act

In the fall of 1986, Bill C-18, the new National Transportation Act, was presented to the House of Commons. Included in the bill was an amendment to the definition of "pipeline" in the National Energy Board Act. The amendment is designed to give the Board jurisdiction over combined pipelines, i.e., pipelines that transport hydrocarbons alone or with another commodity. The Board has also recommended that the new act include a change in the definition of the word "toll" in the National Energy Board Act so the Board would have jurisdiction to set tolls for the transportation of all substances being transported through combined pipelines.

Amendments to the National Energy Board Act Regulations and Rules

During 1986, several amendments to the rules and regulations under which the Board operates were made or initiated. The majority were at the Board's initiative, and reflected the Board's continued efforts toward streamlining its regulatory activities. The following summarizes amendments of significance.

National Energy Board Part VI Regulations

These regulations relate to the export and import of oil, gas, and electricity. The amendments were as follows:

- Amendments to section 6 concerning an increase in the limits of new firm export orders for electricity. The limit for new interruptible energy and equichange, storage, adjustment and carrier transfer exports is also proposed to increase. The maximum term of these export orders is recommended to be three years. In September 1986, the Board approved the amendments. At year-end, they were awaiting examination by the Department of Justice and approval by the Governor in Council.
- Amendment to sections 8 and 35 of the Regulations, as a result of changes in government policy on natural gas matters. Section 8 was amended to remove the mandatory requirement of the Board to include in each export order a condition relating the price of the export to the applicable adjacent border zone price, and to remove the condition restricting the date an order comes into effect upon proof of provincial removal permits. Section 35 was amended to include the filing of export sales contracts and amendments for gas exported under short-term orders, and to require licence-holders to obtain

Board approval of every contract, including amendments and new contracts, between the exporter and importer. The amendments were approved by the Governor in Council in November 1986.

Gas Export Prices Regulations

The Gas Export Prices Regulations, implemented in 1983, prescribed the price of natural gas exported under the authority of the National Energy Board Part VI Regulations.

In 1986, there were amendments to the provisions of the Regulations relating to the Volume Related Incentive Pricing (VRIP) Program, including the extension of the program to 31 October 1986. Under this scheme, introduced in July 1983 before the advent of negotiated natural gas export pricing, exporters were allowed to sell quantities of natural gas in excess of an established base level at an incentive price.

Effective 31 October 1986, the Gas Export Prices Regulations were revoked, thus terminating the VRIP Program. However, almost all export licences were by then subject to negotiated pricing arrangements and had already been removed from the provisions of these regulations.

Rules of Practice and Procedure

In January of 1985, the Board issued a draft of its new Rules of Practice and Procedure. The Rules explain in general how to make an application to the Board. They also specify the procedures to be followed in connection with a public hearing, including a description of the form and

content of documents to be filed with the Board, and the procedures for bringing notices of motion before the Board or applying for a review or re-hearing.

Included in the draft issued in 1985 were five revised Parts to Schedule II of the Rules. Those parts detail the information required to be filed with various types of applications to the Board.

Two additional Parts to Schedule II were amended in 1986. First, in May 1986, the Board issued a revised Part III. This document lists the information required to be filed with an application for a certificate to authorize the construction and operation of an international power line.

Second, a revised Part VI of the Schedule, dealing with environmental filing requirements in applications for pipelines and related facilities, was issued in June 1986.

Although the Rules are still in draft form, they have been distributed widely, and parties have been asked to use them. The Board approved some minor changes to the Rules in late 1986 and expects to issue a revised, consolidated draft early in 1987. Meantime, the Rules are being sent to the Department of Justice for formal examination, and will become official when published in the Canada Gazette.

Environmental Information Requirements

In June 1986, all companies under the Board's jurisdiction were sent the new guidelines outlining the environmental information required to be provided in applications for gas plants and

other facilities such as LPG, natural gas liquids, and butane transfer plants. These new guidelines were prepared in response to a request from industry and are to be used for such applications instead of Part VI of Schedule II to the draft Rules of Practice and Procedure.

Onshore Pipeline Regulations

The Board completed a comprehensive review aimed at consolidating and improving the Oil Pipeline Regulations and the Gas Pipeline Regulations. In February 1986, the Board approved the new Onshore Pipeline Regulations. These regulations provide for the safe design, construction and operation of onshore oil and gas pipelines. They must be examined by the Department of Justice and approved by the Governor in Council before they become effective.

Based on its review of the recommendations relating to an accident on the Interprovincial pipeline system, the Board will be further amending these regulations. To this end it will, in 1987, seek the views of industry, and other interested parties on the proposed changes.

Offshore Pipeline Regulations

In late 1984, the Board issued for comment the first draft of new Offshore Pipeline Regulations. These regulations govern the safe design, construction, and operation of offshore pipelines, and employ the CSA preliminary standard, "CSA Z187, Offshore Pipeline Standard", as a technical basis.

In 1985, following a meeting with industry representatives, an industry task force was established to review these regulations. Based on the results of this review, a further draft was prepared, which will be submitted in the future for review by the industry task force and other interested parties.

Uniform Accounting Regulations

In 1985, the Board had issued guidelines simplifying the regulation of many pipeline companies under its jurisdiction. The guidelines reduced the regulatory burden on 29 oil and gas pipeline companies (Group 2 companies). The remaining 10 major pipelines (Group 1 companies) were not affected and continued to be subject to existing regulatory requirements.

In 1986, the Oil Pipeline Uniform Accounting Regulations and the Gas Pipeline Uniform Accounting Regulations were amended to exempt Group 2 companies from the requirement to keep a standard code of accounts as prescribed in the Regulations. Group 2 companies are now required to maintain their accounts in accordance with generally accepted accounting principles and to file audited financial statements with the Board annually.

Review of Board's Procedures Respecting Third Party Crossings of Pipelines Under National Energy Board Jurisdiction

In a letter dated 16 July 1986, the Board announced that it was considering revising its

regulations governing the crossing of federally regulated pipelines by third parties. These regulations cover crossings such as roads, railways, drainage systems, telephone and power lines, and other pipelines.

It is proposed that a new regulation be enacted to eliminate the need to obtain Board approval for most crossings. This regulation would define the field responsibilities of the pipeline company and of the third party regarding safe crossing procedures. By year-end, comments on the Board's letter had been received from pipeline companies and other parties and were being reviewed.

International Power Line Crossing Regulations

The Board has prepared the first draft of its International Power Line Crossing Regulations. These regulations specify the technical standards to which crossings must be built while keeping the regulatory burden of utilities at a minimum. Interested parties were invited to submit comments on these draft regulations. At year-end, these comments were under consideration.

Labour Canada

In April, revisions to the Canada Labour Code were proclaimed into law. As a result of the changes to the code, Labour Canada has requested that certain Board staff be appointed Safety Officers to act on Labour Canada's behalf in matters of occupational health and safety affecting pipelines under the Board's jurisdiction.

Negotiations between the Board and Labour Canada are presently underway to decide how this proposal can be implemented.

Amendments made pursuant to the Energy Administration Act

In 1986, several legislative changes were made pursuant to the Act for the purpose of fostering a market sensitive pricing regime for natural gas, as provided for in the October 1985 *Agreement on Natural Gas Markets and Prices* between the governments of Canada and the producing provinces.

In June 1986, the House of Commons and the Senate passed Bill C-112, An Act to amend the Energy Administration Act.

The main focus of the Bill was to provide flexibility in the setting of approved or prescribed prices for sales of gas within or without a producing province.

At the time of the amendment, the Energy Administration Act permitted the setting only of specific approved or prescribed prices. Among other things, the new legislation permitted as well: the setting of a range of prices; the setting of a price ceiling; the setting of a price through some sort of formula (e.g., relating it to heavy fuel oil); and the setting of a price by reference to a contract.

In August 1986, following the amendments to the Act itself, the Natural Gas Prices Regulations, 1981, and the new (March 1986) Saskatchewan Natural Prices Regulations were revoked and replaced with the Alberta Natural Gas Prices Regulations, 1986, and the Saskatchewan Natural Gas

Prices Regulations, 1986. The major effect of these new regulations was the elimination of the need for Governor in Council approval to prescribe every negotiated price if the price did not exceed the maximum price established in the regulations. The prescribed price then took effect upon the filing of the executed contract with the Board and the acknowledgement of its receipt by the Board.

As well, in August 1986, the Board revoked all General Orders and Special Orders for the approval of natural gas prices that were in effect on that date, and issued new General Orders which provided a more generalized method of approving prices for purchasing gas within a province for removal and consumption outside that province. Whereas the old orders specified a price approved by the Board for each sale, the new orders established a maximum price, which essentially allowed the automatic approval of all prices in a contract, so long as those prices did not exceed the maximum.

In accord with the October 1985 Agreement, further changes near the end of 1986 were made to facilitate freely negotiated gas prices with the removal of the administered price system. The Energy Administration Act Part III Regulations, which established the filings of prices and contracts negotiated between buyers and sellers and the costs of services to be deducted in calculating prices, were revoked. In addition, sections 53 to 65 of the Energy Administration Act were suspended. These sections, generally, provided the legislative authority to prohibit the movement

and sale of natural gas in Canada unless the price had been prescribed by the Governor in Council or approved by the Board. Thus, the necessity for administered pricing was obviated, and, as of 1 November 1986, the Board no longer issued orders approving gas prices under section 53 of the Act, nor did it administer the Alberta Natural Gas Prices Regulations, 1986, and the Saskatchewan Natural Gas Prices Regulations, 1986, both of which were revoked.

Although the Board's role in domestic gas pricing under the Energy Administrative Act ended, the Board did have continuing responsibilities relating to the administration of the oil export charge program under Parts I and I.1 of the Act. Though, for all intents and purposes, this program ended in 1985, there was some activity in 1986 in auditing of export charges. This activity will continue in 1987.

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Energy Overview

1. Canadian Energy Consumption^a (Petajoules)

	1982	1983	1984	1985	1986 ^e
Petroleum ^b	3381.2	3160.1	3160.6	3135.2	3101.8
Natural Gas ^c	1798.8	1843.4	1998.8	2120.5	2086.9
Hydro Electricity ^d	936.3	948.2	1021.7	1084.6	1107.5
Nuclear Electricity ^d	475.3	591.9	632.0	714.2	813.5
Coal	1001.7	1048.0	1167.4	1122.1	1129.7
Renewable	470.1	487.1	475.6	523.7	536.5
TOTAL FOR CANADA	8063.4	8078.7	8456.1	8700.3	8775.9

a — Includes non-energy use, own use, and conversions and includes fuel for electricity export.

b — Includes LPGs.

c — Excludes reprocessing shrinkage and includes ethane.

d — Hydro and nuclear are converted at 3.6 PJ/TW.h and 12.1 PJ/TW.h respectively.

If the energy were converted using the heat content of 10.5 petajoules per terawatt hour, this assumes that the amount of primary energy associated with hydro and nuclear electricity is the amount which would be required if fossil fuels were used, the amount would be:

	1982	1983	1984	1985	1986(e)
Hydro and Nuclear Electricity	3143.3	3279.2	3528.4	3783.2	3936.1

e Estimate.

Energy Overview

2. Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)

	1982	1983	1984	1985	1986 ^e
Canadian Production	217.7	230.3	243.7	249.4	249.6
Imports ^a	43.8	34.6	34.2	39.8	45.9
Total Supply	261.5	264.9	277.9	289.2	295.5
Domestic Demand ^b	246.7	229.8	229.2	227.9	226.6
Exports ^a	24.8	42.8	49.8	75.3	93.6

a — Excludes exchanges between Canada and the United States.

b — Includes own consumption and domestic demand for refinery LPG and excludes stock changes.

e Estimate.

Energy Overview

3. Natural Gas Supply and Disposition (Billion Cubic Metres at 101.325 KPa and 15° Celsius)

	1982	1983	1984	1985	1986 ^e
Net Sales in Canada	43.9	43.8	47.6	50.1	48.3
Other Canadian Uses ^a	3.4	1.4	2.3	1.0	2.2
Exports	22.2	20.2	21.4	26.2	21.0
Total Deliveries ^b	69.5	65.4	71.3	77.3	71.5

a — Includes pipeline fuel and losses, and other deliveries, less imports and inventory changes.

b — Marketable pipeline gas.

e Estimate.

Energy Overview

4. Electricity Generation and Disposition (Terawatt Hours)

	1982	1983	1984	1985	1986 ^e
Total Generation	376.8	395.9	424.9	446.4	455.8
Imports ^a	.3	.2	.3	.2	.2
Total Supply	377.1	396.1	425.2	446.6	456.0
Domestic Demand	344.1	359.2	387.6	405.1	420.8
Exports ^a	33.0	36.9	37.6	41.5	35.2

a — Excludes exchanges between Canada and the United States.

e Estimate.

Gas

1. Certificates Issued During 1986 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were issued in 1986.

2. Orders Issued During 1986 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost(\$)
Canadian Hunter Exploration Ltd.	XG-1-86	86-02-12	Construction of 29.3 km of 273 mm O.D. pipeline and works connected, British Columbia and Alberta	4 450 020
Cyanamid Canada Pipeline Inc.	XG-13-86	86-12-15	Construction of 6.2 km of 219 mm O.D. Pipeline, Ontario	890 000
Foothills Pipe Lines (Sask.) Ltd.	XG-2-86	86-03-12	Richmond Sales Meter Station, Saskatchewan	120 000
Foothills Pipe Lines (Sask.) Ltd.	XG-11-86	86-09-10	McLaren Lake Sales Meter Station, Saskatchewan	350 000
Niagara Gas Transmission Limited	XG-12-86	86-09-24	Modifications to St. Lawrence Gate Station and temporary by-pass piping, Ontario	58 520
Peace River Transmission Company Limited	XG-7-86	86-06-25	Sales Tap No. 2, British Columbia	under 3 000
Peace River Transmission Company	XG-8-86	86-06-25	Sales Tap No. 3, British Columbia	under 3 000
Peace River Transmission Company Ltd.	XG-9-86	86-06-25	Sales Tap No. 5, British Columbia	under 3 000
TransCanada PipeLines Limited	XG-3-86	86-04-16	Interconnecting facilities with Ocelot pipeline, Bayhurst, Saskatchewan	90 000
TransCanada PipeLines Limited	XG-5-85	86-07-30	Construction of 6.7 km of 914 mm O.D. pipeline and additions to C.S. No. 211 and Niagara Check Meter Station, Ontario	10 244 000
TransCanada PipeLines Limited	MO-63-86	86-12-15	Interconnecting facilities with Cyanamid pipeline, Black Horse M.S., Ontario	-
Union Gas Limited	XG-6-86	86-06-20	Upgrading and modifications to Ojibway Sales Meter Station, Ontario	94 300
Westcoast Transmission Company Limited	XG-4-86	86-07-23	Construction of 31.9 km of 273 mm O.D. pipeline and Sikanni Sales Metre Station No. 69, British Columbia	7 560 200
Westcoast Transmission Company Limited	XG-10-86	86-08-13	Tunkwa Lake Road Sales Meter Station, British Columbia	87 500

Gas

3. Orders Issued During 1986 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost(\$)
Alberta Natural Gas Company Ltd.	XGM-22-86	86-12-17	Compressor station modifications plant and office equipment	2 997 900
Foothills Pipe Lines (Yukon) Ltd.	XGM-7-86	86-03-05	Compressor station modifications general plant and office equipment	1 064 400
Shell Canada Products Limited	XGM-23-86	86-12-23	Modifications to 457 mm O.D. pipeline for conversion to gas	3 000 000
TransCanada PipeLines Limited	XGM-1-86	86-01-16	Pipe replacements	16 211 000
TransCanada PipeLines Limited	XGM-4-86	86-02-19	Pipeline, compressor and meter station modifications and additions	23 646 000
TransCanada PipeLines Limited	XGM-5-86	86-02-12	General plant	5 024 000
TransCanada PipeLines Limited	XGM-9-86	86-04-03	Pipe replacements, pipeline modifications	10 897 000
TransCanada Pipelines Limited	XGM-10-86	86-04-09	Pipe replacements, compressor station modifications	1 452 000
TransCanada PipeLines Limited	XGM-11-85	86-04-09	Compressor station modifications	180 000
TransCanada PipeLines Company Ltd.	XGM-15-86	86-07-09	Compressor station modifications, pipe replacement	7 396 000
TransCanada PipeLines Limited	XGM-16-86	86-08-13	Pipe replacement	194 000
TransCanada PipeLines Limited	XGM-19-86	86-10-02	Additional Contingencies	500 000
TransCanada PipeLines Limited	XGM-20-86	86-10-17	Pipe replacement, compressor repair	445 000
TransCanada PipeLines Limited	XGM-21-86	86-10-22	Pipe replacement, compressor station modifications, pipeline equipment, metering facilities	46 571 000
TransQuébec & Maritimes Pipeline Limited Inc.	XGM-8-86	86-03-12	Transmission and general plant	206 400
Westcoast Transmission Company Limited	XGM-2-86	86-02-07	General plant modifications, office services, mobile equipment	25 050 000
Westcoast Transmission Company Limited	XGM-3-86	86-02-12	Pipe replacement	2 985 000
Westcoast Transmission Company Limited	XGM-6-86	86-02-26	Pipe equipment replacement	2 321 000
Westcoast Transmission Company Limited	XGM-12-86	86-04-30	Plant equipment replacement	1 384 000
Westcoast Transmission Company Limited	XGM-13-86	86-07-02	Plant equipment replacement, communications	817 000

Gas

3. (cont'd) Orders Issued During 1986 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost(\$)
Westcoast Transmission Company Limited	XGM-14-86	86-07-09	Meter Station facilities	110 000
Westcoast Transmission Company Limited	XGM-17-86	86-09-03	Pipe replacement, compressor and plant modifications	326 000
Westcoast Transmission Company Limited	XGM-18-86	86-10-02	Pipe and valve replacement, plant modifications and mobile equipment	371 000

Gas

4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1986

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
1. Alberta & Southern Gas Co. Ltd.	GL-3	Kingsgate, B.C.	61-10-31	86-10-30	12 995.4	4 341.8	106 288.0
			86-10-31	86-12-17	3 248.9	152.9	
	GL-16		66-11-01	67-10-31	3 204.6	1 059.9	32 063.8
			67-11-01	86-10-31	6 409.2	2 119.8	
			86-11-01	86-12-17	6 409.2	301.6	
	GL-24		68-11-01	69-10-31	3 427.7	1 102.0	28 553.1
			69-11-01	86-10-31	6 685.4	2 206.7	
			86-11-01	86-12-17	6 685.4	289.9	
	GL-35		70-11-01	86-10-31	5 807.2	1 912.1	27 936.0
			86-11-01	86-12-17	5 807.2	273.3	
	GL-67		86-11-01	86-12-17	12 995.4	221.8	221.8
	GL-99		86-12-18	87-10-31	31 897.2	9 340.9	77 626.5
			87-11-01	94-10-31	31 897.2	10 580.4	
2. Canadian Montana Pipe Line Company	GL-5	Aden/Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	61-10-31	86-10-30	1 019.8	310.2	7 832.3
				87-10-31	255.0	77.6	
			86-10-31				
	GL-17		66-11-01	67-10-31	339.9	103.4	4 652.8
			67-11-01	89-10-31	679.9	206.8	
	GL-25		68-11-01	69-10-31	339.9	103.4	4 905.4
			69-11-01	91-10-31	679.9	206.8	
			91-11-01	92-10-31	439.0	133.6	
			92-11-01	93-10-31	390.9	119.0	
	GL-36		70-11-01	85-10-31	339.9	103.4	1 628.5
			85-11-01	86-10-31	170.0	51.7	
			86-11-01	87-10-31	85.0	25.9	
	GL-52		80-01-01	83-03-31	1 416.4	283.3	2 266.4
			83-04-01	87-12-31	1 133.1	283.3	
	GL-53	Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	86-07-01	86-10-31	340.0	34.5	86.2
			86-11-01	87-10-31	170.0	51.7	
	GO-3-79	Reagan Field, Alta.	79-05-01	93-12-31	30.0	10.3	105.0
	GL-70	Niagara Falls, Ont.	86-11-01	87-10-31	637.4	193.9	814.1
			87-11-01	90-10-31	509.9	155.1	
			90-11-01	91-10-31	339.6	103.3	
			91-11-01	92-10-31	169.8	51.6	
	GL-71		89-11-01	90-10-31	340.0	103.4	206.7
			90-11-01	91-10-31	226.4	68.9	
			91-11-01	92-10-31	113.2	34.4	
	GL-72	Aden, Alta.	88-01-01	88-10-31	1 133.1	236.1	1 085.7
			88-11-01	90-10-31	1 133.1	283.3	
			90-11-01	91-10-31	754.6	188.7	
			91-11-01	92-10-31	377.3	94.3	

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1986

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
3. Columbia Gas Development of Canada Ltd.	GL-54	Monchy, Sask.	83-04-01	83-12-31	1 450.0	387.7	3 556.1
			84-01-01	87-12-31	1 450.0	517.0	
	GL-74		88-01-01	88-10-31	1 450.0	430.8	1 981.3
			88-11-01	90-10-31	1 450.0	517.0	
			90-11-01	91-10-31	965.7	344.3	
			91-11-01	92-10-31	482.8	172.2	
4. Consolidated Natural Gas Ltd.	GL-44 ^a	Emerson, Man.	72-03-15	92-10-31	4 249.2	1 274.8	18 951.3
	GL-61	Emerson, Man. & Monchy, Sask. Combined Maximum	80-11-01	85-10-31	5 665.6	2 067.9	13 389.6
			85-11-01	86-10-31	4 532.5	1 654.0	
			86-11-01	87-10-31	3 824.3	1 396.0	
			81-11-01	84-10-31	3 232.9	1 180.0	7 278.9
			84-11-01	85-10-31	3 891.1	1 438.4	
			85-11-01	86-10-31	3 682.6	1 344.0	
			86-11-01	87-10-31	2 620.3	956.5	
	GL-75		87-11-01	89-10-31	3 824.3	1 396.0	2 792.0
			87-11-01	89-10-31	1 912.2	698.0	1 396.0
5. ICG Transmission Holdings Ltd.	GL-28	Sprague, Man.	70-11-01	95-10-31	80.3	9.5	229.0
	GL-29	Fort Frances, Ont.	70-11-01	95-10-31	915.6	218.5	5 462.2
	GL-30 ^b	Sprague, Man.	70-11-01	95-10-31	1 321.8	344.0	8 498.1
6. KannGaz Producers Ltd.	GL-77	Niagara Falls, Ont.	87-11-01	96-10-31	3 540.0	1 292.1	13 567.0
			96-11-01	97-10-31	2 655.0	969.1	
			97-11-01	98-10-31	1 770.0	646.0	
			98-11-01	99-10-31	885.0	323.0	
			99-11-01	00-10-31	3 540.0	1 292.1	
7. Niagara Gas Transmission Ltd.	GL-55	Cornwall, Ont.	80-01-01	82-10-31	350.0	89.1	1 500.2
			82-11-01	83-03-31	350.0	37.1	
			83-04-01	83-10-31	1 200.0	145.8	
			83-11-01	85-10-31	1 200.0	250.0	
			85-11-01	87-10-31	1 200.0	275.0	
	GL-78		87-11-01	90-10-31	1 200.0	275.0	1 099.7
			90-11-01	91-10-31	799.2	183.1	
			91-11-01	92-10-31	399.2	91.6	
	GL-95	Emerson, Man.	87-11-01	96-10-31	4 332.5	1 581.4	16 604.7
			96-11-01	97-10-31	3 249.4	1 186.0	
			97-11-01	98-10-31	2 166.2	790.7	
			98-11-01	99-10-31	1 083.1	395.4	
8. Pan-Alberta Gas Ltd.	GL-96	Kingsgate, B.C.	84-11-01	85-10-31	7 478.6	2 155.9	23 763.6
			85-11-01	94-10-31	7 478.6	2 488.3	
			94-11-01	95-10-31	4 980.7	1 657.2	
			95-11-01	96-10-31	2 490.7	828.6	
	GL-97	Monchy, Sask.	84-11-01	85-10-31	24 928.5	7 582.8	75 296.7
			85-11-01	94-10-31	24 928.5	8 294.4	
			94-11-01	95-10-31	16 602.4	5 524.1	
			95-11-01	96-10-31	8 301.2	2 762.0	

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1986

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
9. ProGas Ltd.	GL-80	Niagara Falls, Ont.	87-11-01	96-10-31	1 420.0	518.3	5 442.1
			96-11-01	97-10-31	1 065.0	388.7	
			97-11-01	98-10-31	710.0	259.1	
			98-11-01	99-10-31	355.0	129.6	
			99-11-01	00-10-31	1 420.0	518.3	
	GL-81	Emerson, Man.	87-11-01	96-10-31	5 270.0	1 923.5	20 196.7
			96-11-01	97-10-31	3 952.5	1 442.6	
			97-11-01	98-10-31	2 635.0	961.7	
			98-11-01	99-10-31	1 317.5	480.9	
			99-11-01	00-10-31	5 270.0	1 923.5	
	GL-98	Emerson, Man. & Monchy, Sask. Combined Maximum	86-08-13	86-10-31	9 440.9	2 646.2	12 177.8
			86-11-01	87-10-31	7 552.7	2 480.0	
			87-11-01	90-10-31	9 440.9	3 100.0	
			90-11-01	91-10-31	7 552.7	2 480.0	
			91-10-01	92-10-31	5 664.5	1 860.0	
			92-11-01	93-10-31	3 776.4	1 240.0	
			93-11-01	94-10-31	1 888.2	620.0	
		Monchy, Sask.	86-08-13	86-10-31	6 797.4	2 480.0	10 988.5
			86-11-01	87-10-31	3 776.3	1 240.0	
			87-11-01	90-10-31	4 720.4	1 550.0	
			90-11-01	91-10-31	3 776.3	1 240.0	
			91-11-01	92-10-31	2 832.2	930.0	
10. Sulpetro Ltd.	GL-82		84-02-05	84-10-31	2 125.0	340.0	4 653.7
			84-11-01	88-10-31	2 125.0	775.6	
			88-11-01	89-10-31	2 125.0	745.9	
			89-11-01	90-10-31	850.0	310.2	
			90-11-01	91-10-31	425.0	155.1	
			91-11-01	92-10-31	2 125.0	775.6	
11. TransCanada PipeLines Ltd.	GL-18	Emerson, Man. & Niagara Falls, Ont.	65-11-01	66-10-31	708.2	1 226.6	33 993.4
			66-11-01	90-10-31	4 277.5	1 481.5	
	GL-19	Philipsburg, Qué.	65-11-01	82-10-31	600.6	184.1	3 059.4
			82-11-01	83-10-31	634.5	184.1	
			83-11-01	84-10-31	657.2	184.1	
			84-11-01	85-10-31	679.9	184.1	
			85-11-01	86-10-31	702.5	184.1	
			86-11-01	89-10-31	725.2	184.1	
	GL-20	Emerson, Man.	67-11-01	91-10-31	2 662.8	909.3	21 670.8
	GL-21 ^d		68-11-05	91-10-31	N/S	7 019.1	169 967.0
	GL-37		70-11-01	90-10-31	5 546.6	2 030.1	40 601.0
	GL-38		70-11-01	90-10-31	1 416.4	518.4	10 368.0
	GL-39		70-11-01	90-10-31	204.0	74.6	1 493.0
	GL-42 ^d		71-04-15	71-10-31	N/S	323.8	60 316.5
			71-11-01	94-10-31	N/S	2 612.3	
	GL-43		71-11-01	91-10-31	N/S	481.6	9 631.5

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1986

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
11. (cont'd) TransCanada PipeLines Ltd.	GL-83	Niagara Falls, Ont.	84-11-01	86-10-31	1 133.1	414.0	9 350.2
			86-11-01	94-10-31	2 620.3	959.0	
			94-11-01	95-10-31	1 521.3	556.8	
			95-11-01	96-10-31	774.3	283.4	
	GL-84		84-11-01	93-10-31	1 416.4	518.4	5 054.4
			93-11-01	94-10-31	1 062.3	388.8	
	GL-85		84-11-01	93-10-31	2 832.8	1 036.8	10 108.8
			93-11-01	94-10-31	2 124.6	777.6	
	GL-86	Emerson, Man.	84-11-01	93-10-31	2 832.8	1 036.8	10 886.4
			93-11-01	94-10-31	2 124.6	777.6	
			94-11-01	95-10-31	1 416.4	518.4	
			95-11-01	96-10-31	708.2	259.2	
	GL-87		84-11-01	93-10-31	2 832.8	1 036.8	10 886.4
			93-11-01	94-10-31	2 124.6	777.6	
			94-11-01	95-10-31	1 416.4	518.4	
			95-11-01	96-10-31	708.2	259.2	
	GL-88	Emerson, Man. and/or Niagara Falls, Ont.	84-11-01	93-10-31	4 249.2	1 555.2	16 329.6
			93-11-01	94-10-31	3 186.9	1 166.4	
			94-11-01	95-10-31	2 124.6	777.6	
			95-11-01	96-10-31	1 062.2	388.8	
	GL-89	Emerson, Man.	84-11-01	85-10-31	6 317.1	524.1	12 960.8
			85-11-01	86-10-31	6 317.1	1 957.3	
			86-11-01	90-10-31	6 317.1	2 096.3	
			90-11-01	91-10-31	4 207.2	1 396.1	
			91-11-01	92-10-31	2 103.6	698.1	
	GL-90	Niagara Falls, Ont.	85-11-01	94-10-31	1 416.4	518.4	5 443.2
			94-11-01	95-10-31	1 062.3	388.8	
			95-11-01	96-10-31	708.2	259.2	
			96-11-01	97-10-31	354.1	129.6	
12. Transcontinental Gas Pipe Line Corp.	GL-91 ^e	Niagara Falls, Ont.	84-11-01	93-10-31	8 498.4	1 555.2	16 329.6
			93-11-01	94-10-31	6 373.8	1 166.4	
			94-11-01	95-10-31	4 249.2	777.6	
			95-11-01	96-10-31	2 124.6	388.8	
13. Union Gas Ltd.	GL-92	Windsor, Ont.	85-11-01	90-10-31	1 100.0	284.0	1 703.7
			90-11-01	91-10-31	732.6	189.1	
			91-11-01	92-10-31	366.3	94.6	
			92-11-31	93-10-31	1 100.0	284.0	
14. Westcoast Transmission Company Ltd.	GL-4	Huntingdon, B.C. & Kingsgate, B.C.	61-12-10	81-12-09	4 305.8	1 444.7	35 250.9
			81-12-10	82-10-31	4 305.8	1 300.0	
			82-11-01	84-10-31	4 305.8	1 444.7	
			84-11-01	85-10-31	3 229.4	1 083.5	
			85-11-01	86-10-31	2 152.9	722.4	
			86-11-01	87-10-31	1 076.5	361.2	
	GL-41	Huntingdon, B.C. Kingsgate, B.C. & Monchy, Sask.	71-11-01	72-10-31	20 773.9	7 223.1	143 495.2
			72-11-01	80-10-31	22 922.9	7 970.3	
			80-11-01	83-03-31	24 622.6	7 970.3	
			83-04-01	83-10-31	26 039.0	4 706.2	
			83-11-01	89-10-31	26 039.0	8 067.8	

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1986

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
14. (cont'd) Westcoast Transmission Company Ltd.	GL-93	Huntingdon, B.C.	89-11-01	92-10-31	8 498.3	3 101.9	13 958.5
			92-11-01	93-10-31	6 373.7	2 326.4	
			93-11-01	94-10-31	4 249.1	1 550.9	
			94-11-01	95-10-31	2 124.6	775.5	
	GL-94	Huntingdon, B.C. Kingsgate, B.C. & Monchy, Sask. Combined Maximum	89-11-01	90-10-31	13 731.0	4 637.1	9 269.5
			90-11-01	91-10-31	9 144.8	3 088.3	
			91-11-01	92-10-31	4 572.4	1 544.1	
		Maximum permitted at Monchy, Sask. as part of Combined Huntingdon/ Kingsgate/Monchy Volumes	89-11-01	90-10-31	1 416.4	517.0	
			90-11-01	91-10-31	1 416.4	517.0	
			91-11-01	92-10-31	1 416.4	517.0	
		Maximum permitted at Monchy, Sask. as part of Combined Huntingdon/ Kingsgate/Monchy Volumes	89-11-01	90-10-31	2 832.8	N/S	
			90-11-01	91-10-31	2 832.8	N/S	
			91-11-01	92-10-31	2 832.8	N/S	

- a— This licence authorizes the export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to licence GLI-5.
- b— This licence authorizes an export near Sprague, Manitoba for import near Rainy River, Ont.
- c— This licence is to commence on the date of initial delivery and expire 20 1/2 years after, or a total term not exceeding 25 years. The liquefied natural gas exported will have been previously imported by the licensee near Saint John, New Brunswick pursuant to Licence GLI-7.
- d— This licence authorizes an export near Emerson, Manitoba for import near Sault Ste Marie and Sarnia, Ontario, to serve the eastern Canadian market.
- e— This licence authorizes the export of natural gas previously imported and stored in Canada.
- N/S Not Specified.

Gas

5. Licences and Long-Term Orders to Export Propane, Butanes, Ethane and Ethylene as at 31 December 1986 (Cubic Metres)

Importer	Licence or Order Number	Point of Import	Term of Licence or Order		Maximum Volumes		
			From	To			
PROPANE							
1. Amoco Canada Petroleum Company Ltd.	GL-32	Any point on the international boundary between Canada and the United States	79-01-01	93-12-31	92 698/year		
			94-01-01	94-12-31	77 206		
	EPR-918-79 ^a	Same as GL-32	79-09-06	96-01-31	N/S		
2. Dome Petroleum Ltd.	GL-31	Same as GL-32	79-01-01	79-12-31	716 983		
			80-01-01	80-12-31	688 571		
			81-01-01	81-12-31	656 190		
			82-01-01	82-12-31	620 476		
			83-01-01	86-12-31	133 254/year		
			87-01-01	87-12-31	143 809		
			88-01-01	88-12-31	193 016		
			89-01-01	89-12-31	196 984		
			90-01-01	90-12-31	169 047		
			91-01-01	91-12-31	165 873		
			92-01-01	92-12-31	165 079		
			93-01-01	93-12-31	162 098		
			94-01-01	94-12-31	103 968		
			EPR-917-79 ^a	Same as GL-32	79-09-06	96-01-31	N/S
			EPR-930-84 ^b	Any point in the Province of Ontario on the international boundary between Canada and the United States	84-04-01	84-12-31	458 335
	85-01-01	91-12-31			608 335/year		
92-01-01	92-04-15	153 100					
3. Imperial Oil Ltd.	EPR-922-80 ^a	Gretna, Man.	80-09-01	90-08-31	N/S		
4. PanCanadian Gas Products Ltd.	GL-34	Same as GL-32	79-01-01	85-12-31	63 730/year		
			86-01-01	86-12-31	53 175		
			87-01-01	87-12-31	3 968		
	EPR-919-79 ^a	Same as GL-32	79-06-06	91-01-31	N/S		
BUTANES							
5. Amoco Canada Petroleum Company Ltd.	EBU-133-74 ^a	Gretna, Man.	79-01-01	79-12-31	618 088		
			80-01-01	80-12-31	575 893		
			81-01-01	81-12-31	540 176		
			82-01-01	82-12-31	488 674		
			83-01-01	83-12-31	423 848		
			84-01-01	84-12-31	374 315		
			85-01-01	85-12-31	359 244		
			86-01-01	86-12-31	308 345		
			87-01-01	87-12-31	260 131		
			88-01-01	88-12-31	239 549		
			89-01-01	89-12-31	205 008		
			90-01-01	90-12-31	179 455		
			91-01-01	91-12-31	163 527		
			92-01-01	92-12-31	135 973		
			93-01-01	93-12-31	122 506		
			94-01-01	94-12-31	95 286		
			95-01-01	95-12-31	91 062		

Gas

5. (cont'd) Licences and Long-Term Orders to Export Propane, Butanes, Ethane and Ethylene as at 31 December 1986 (Cubic Metres)

Importer	Licence or Order Number	Point of Import	Term of Licence or Order		Maximum Volumes
			From	To	
6. Dome Petroleum Ltd.	EBU-132-74 ^a	Gretna, Man.	79-01-01	79-12-31	603 129
			80-01-01	80-12-31	580 324
			81-01-01	81-12-31	556 375
			82-01-01	82-12-31	532 601
			83-01-01	83-12-31	502 284
			84-01-01	84-12-31	452 037
			85-01-01	85-12-31	437 093
			86-01-01	86-12-31	402 186
			87-01-01	87-12-31	352 812
			88-01-01	88-12-31	341 711
			89-01-01	89-12-31	315 460
			90-01-01	90-12-31	299 627
			91-01-01	91-12-31	290 273
			92-01-01	92-12-31	272 057
			93-01-01	93-12-31	265 117
			94-01-01	94-12-31	245 012
			95-01-01	95-12-31	239 724
	EBU-929-84 ^a	Any point in the Province of Ontario on the international boundary between Canada and the United States	84-04-01	84-12-31	340 650
			85-01-01	91-12-31	425 135/year
			92-01-01	92-12-31	128 825
7. Imperial Oil Ltd.	EBU-911-80 ^a	Gretna, Man.	80-09-01	90-08-31	N/S
8. PanCanadian Gas Products Ltd.	EBU-134-74 ^a	Gretna, Man.	79-01-01	83-12-31	213 822/year
			84-01-01	90-12-31	240 550/year
9. Texaco Canada Inc.	EBU-916-82 ^a	Gretna, Man.	82-07-01	92-06-30	N/S
10. Dome Petroleum Ltd.	GL-51	Elmore, Sask. Windsor, Ont.	79-06-21	93-12-31	19 069 000
ETHYLENE					
11. Dow Chemical of Canada Ltd.	EYL-1-76	Elmore, Sask. Sarnia and Windsor, Ont.	80-01-01	89-12-31	158 757 340 kg/year
	EYL-2-76 ^a	Elmore, Sask.	78-01-01	97-12-31	181 438 810 kg/year

a — This licence/order authorizes an export of product for subsequent import.

b — This is an import-export licence/order whereby product exported has been previously imported.

N/S Not Specified

Gas

6. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1986

Importer	Licence or Order Number	Point of Import	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
1. Border Utilities Ltd.	GO-8-86	Coutts, Alta.	86-01-28	99-12-31	30.0	N/S	N/S
2. Canadian Western Natural Gas Co. Ltd.	GO-6-66	Coutts, Alta.	66-09-22	85-09-14	30.0	N/S	N/S
	GO-6-84		84-11-01	85-10-31	N/S	3.4	3.4
	GO-5-85		85-11-01	86-09-15	N/S	N/S	3.4
3. Consolidated Natural Gas Ltd.	GLI-5 ^a	Willow Creek, Sask.	72-03-15	92-10-31	4 249.2	1 274.8	18 951.3
4. ICG Transmission Limited	GL-30 ^b	Rainy River, Ont.	70-11-01	95-10-31	1 321.8	344.0	8 498.1
5. Tenneco LNG Inc.	GLI-7	Saint John, N.B.	c	c	N/S	418.68PJ	8 373.6PJ
6. TransCanada PipeLines Ltd.	GL-21 ^b	Sault Ste-Marie and Sarnia, Ont.	68-11-05	91-10-31	N/S	7 019.1	169 967.0
	GL-42 ^d		71-04-15	71-10-31	N/S	232.8	
			71-11-01	94-10-21	N/S	2 612.3	60 316.5
7. Transcontinental Gas Pipe Line Corp.	GL-91 ^e	Sarnia, Ont.	84-11-01	93-10-31	4 249.0	1 555.2	
			93-11-01	94-10-31	3 156.9	1 166.4	
			94-11-01	95-10-31	2 124.6	777.6	
			95-11-01	96-10-31	1 062.3	388.8	16 329.6

a — This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Manitoba, pursuant to licence GL-44.

b — This licence authorizes an import of natural gas which the licensee has exported near Sprague, Man.

c — This licence is to commence on the date of initial delivery and expire 20 1/2 years after, or a total term not exceeding 25 years. This liquefied natural gas hereby imported is to be subsequently exported near St. Stephen, New Brunswick, pursuant to licence GL-49.

d — This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Manitoba. This natural gas serves Canadian markets.

e — This licence authorizes an import of natural gas for storage in Canada and subsequently exported to the United States.

N/S Not Specified.

Gas

7. Licences and Long-Term Orders to Import Propane, Butanes, Ethane and Ethylene as at 31 December 1986 (Cubic Metres)

Importer	Licence or Order Number	Point of Import	Term of Licence or Order		Maximum Volumes
From	To				
PROPANE					
1. Amoco Canada Petroleum Company Ltd.	EPR-918-79 ^a	Any point on the international boundary between Canada and the United States	79-09-06	96-01-31	N/S
BUTANES					
2. Amoco Canada Petroleum Company Ltd.	EBU-133-74 ^a	Sarnia, Ont.	79-01-01	79-12-31	618 088
			80-01-01	80-12-31	575 893
			81-01-01	81-12-31	540 176
			82-01-01	82-12-31	488 674
			83-01-01	83-12-31	423 158
			84-01-01	84-12-31	374 315
			85-01-01	85-12-31	359 244
			86-01-01	86-12-31	308 345
			87-01-01	87-12-31	260 131
			88-01-01	88-12-31	239 549
			89-01-01	89-12-31	205 008
			90-01-01	90-12-31	179 455
			91-01-01	91-12-31	163 527
			92-01-01	92-12-31	135 973
			93-01-01	93-12-31	122 506
			94-01-01	94-12-31	95 286
			95-01-01	95-12-31	91 062
3. Dome Petroleum Ltd.	EBU-132-74 ^a	Sarnia, Ont.	79-01-01	79-12-31	603 129
			80-01-01	80-12-31	580 324
			81-01-01	81-12-31	556 375
			82-01-01	82-12-31	532 601
			83-01-01	83-12-31	502 284
			84-01-01	84-12-31	452 037
			85-01-01	85-12-31	437 093
			86-01-01	86-12-31	402 186
			87-01-01	87-12-31	352 812
			88-01-01	88-12-31	341 711
			89-01-01	89-12-31	315 460
			90-01-01	90-12-31	299 627
			91-01-01	91-12-31	290 273
			92-01-01	92-12-31	272 057
			93-01-01	93-12-31	265 117
			94-01-01	94-12-31	245 012
			95-01-01	95-12-31	239 724
4. Imperial Oil Ltd.	EBU-911-80 ^a	Sarnia, Ont.	80-09-01	90-08-31	N/S
5. PanCanadian Gas Company Ltd.	EBU-134-74 ^a	Sarnia, Ont.	79-01-01	83-12-31	213 822 year
6. Texaco Canada Inc.	EBU-916-82 ^a	Sarnia, Ont.	84-01-01	90-12-31	240 550 year
			82-07-01	92-06-30	N/S
ETHYLENE					
7. Dow Chemical of Canada Ltd.	EYL-2-76 ^a	Windsor, Ont.	78-01-01	97-12-31	68 038 860 kg/year

a — This licence/order authorizes an import of product which has been previously exported.

b — This is an import-export licence/order whereby product imported is subsequently exported.

N/S Not Specified

Gas

8. Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1985 Actual	1986 Preliminary	Cumulative to 31 Dec. 1986
Alberta & Southern Gas Co. Ltd	GL-3	4 743.6	2 471.0	106 288.0
	GL-16	1 304.4	464.8	32 063.8
	GL-24	615.9	439.8	28 553.1
	GL-35	1 895.8	857.4	27 936.0
	GL-67	-	221.8	221.8
	GL-99	-	443.0	443.0
	GO-31-86	-	232.3	232.3
	GO-62-86	-	1 820.0	1 820.0
Amoco Canada Petroleum Co. Ltd.	GO-1-85	26.1	-	26.1
	GO-10-85	17.2	51.3	68.6
Brymore Gas (Canada) Inc.	GO-80-86	-	2.6	2.6
Canadian-Montana Pipe Line Company	GL-5	.0	.0	6 386.4
	GL-17	.0	.0	3 035.3
	GL-25	.0	.0	3 516.4
	GL-36	.0	.0	1 183.2
	GL-52	224.1	211.7	968.0
	GO-3-79	3.7	4.3	19.0
	GO-3-79	3.7	4.3	19.0
Consolidated Natural Gas Limited	GL-44 ^a	333.1	265.0	5 839.0
	GL-61	881.9	365.3	4 775.4
	GO-3-86	-	214.3	214.3
	GO-4-86	-	68.2	68.2
	GO-89-86	-	68.3	68.3
	GO-92-86	-	72.7	72.7
Czar Resources Limited	GO-7-84	58.5	-	61.2
	GO-9-85	6.3	7.0	13.3
	GO-30-86	-	29.5	29.5
Diamond Shamrock Exploration of Canada Ltd.	GO-23-85	.0	1.7	1.7
Dome Petroleum Limited	GO-11-85	55.9	101.0	156.8
	GO-18-85	2.3	15.7	17.9
	GO-22-85	.0	2.5	2.5
	GO-14-86	-	.5	.5
	GO-101-86	-	9.6	9.6
ICG Transmission Holdings Ltd.	GL-28	9.7	4.8	129.7
	GL-29	91.7	43.4	2 689.6
	GL-30 ^b	171.8	175.8	4 242.4
	GO-53-86	-	1.7	1.7
	GO-54-86	-	30.5	30.5
	GO-98-86	-	2.5	2.5
	GO-99-86	-	16.4	16.4
	GO-100-86	-	3.8	3.8
Imperial Oil Limited	GO-6-85 ^c	.0	87.6	87.6
	GO-84-86 ^c	-	22.4	22.4
Natgas Canada Inc.	GO-19-86	-	2.0	2.0
Niagara Gas Transmission Limited	GL-55	227.6	110.1	910.8
	GO-32-86	-	53.7	53.7
	GO-90-86	-	46.6	46.6
Northridge Petroleum Marketing, Inc.	GO-2-85	66.2	.0	66.2
	GO-13-85	13.7	55.2	68.9

Gas

8. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1985 Actual	1986 Preliminary	Cumulative to 31 Dec. 1986
Pan-Alberta Ltd.	GL-96	2 480.0	2 484.8	5 046.3
	GL-97	3 414.2	1 971.4	5 578.7
	GO-96-86	-	180.0	180.0
Poco Petroleum Limited	GO-19-85	47.7	142.8	190.5
	GO-87-86	-	2.2	2.2
ProGas Limited	GL-56	1 136.3	427.3	6 732.2
	GL-98	-	262.5	262.5
	GO-14-85	13.8	32.9	46.7
	GO-15-85	88.3	59.0	147.3
	GO-16-85	59.6	53.2	112.8
	GO-9-86	-	44.6	44.6
	GO-10-86	-	38.9	38.9
	GO-11-86	-	25.5	25.5
	GO-12-86	-	79.3	79.3
	GO-97-86	-	34.4	34.4
Shell Canada Limited	GO-28-85	-	17.1	17.1
	GO-21-86	-	.3	.3
Sulpetro Limited	GL-82	740.6	431.9	1 531.1
	GO-8-85	.9	.0	.9
TransCanada Pipelines Limited	GL-18	786.8	207.7	20 555.4
	GL-19	147.6	111.3	2 141.6
	GL-20	309.5	52.3	13 519.9
	GL-21 ^d	5 159.5	6 493.5	104 463.1
	GL-37	1 103.6	704.4	27 257.4
	GL-38	362.5	60.9	6 771.7
	GL-39	70.6	21.9	915.2
	GL-42 ^d	1 920.2	2 416.7	32 714.5
	GL-43	.0	.0	1 335.8
	GL-60	1 322.4	.0	7 279.6
	GL-83	382.2	378.0	829.4
	GL-89	229.2	375.1	604.3
	GO-7-86	-	619.4	619.4
	GO-13-86	-	104.9	104.9
	GO-24-86	-	16.7	16.7
	GO-25-86	-	1.7	1.7
	GO-40-86	-	.0	.0
	GO-51-86	-	25.4	25.4
	GO-52-86	-	176.1	176.1
	GO-56-86	-	36.9	36.9
	GO-83-86 ^e	-	3.8	3.8
	GO-86-86	-	34.3	34.3
	GO-91-86	-	15.8	15.8
	GO-93-86	-	235.7	235.7
Union Gas Limited	GL-64	13.2	-	901.7

Gas

8. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1985 Actual	1986 Preliminary	Cumulative to 31 Dec. 1986
Westcoast Transmission Limited	GL-4	602.4	254.4	29 046.5
	GL-41	2 597.9	1 430.5	73 214.2
	GO-15-86	-	348.3	348.3
	GO-16-86	-	81.9	81.9
	GO-17-86	-	1.6	1.6
	GO-23-86	-	1.0	1.0
	GO-94-86	-	77.6	77.6
	GO-95-86	-	771.2	771.2
GROSS EXPORTS		33 738.7	30 445.0	576 643.4
NET EXPORTS ^f		26 154.1	20 980.1	429 270.6

a — This licence authorizes an export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to licence GLI-5.

b — This licence authorizes an export near Sprague, Man. for import near Rainy River, Ont.

c — This licence authorizes an export of natural gas near Emerson, Man. in exchange for an import of ethane by Dome Petroleum Limited near Sarnia, Ont.

d — This licence authorizes an export near Emerson, Man. for import near Sault Ste Marie and Sarnia, Ont. to serve the eastern Canadian markets.

e — This licence authorizes an export of natural gas which the licensee has imported near Niagara Falls, Ont.

f — Excludes volumes of licences/orders under footnotes.

Gas

9. Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1985 Actual	1986 Preliminary	Cumulative to 31 Dec. 1986
Border Utilities Ltd.	GO-2-66	.9	-	18.4
	GO-8-86	-	.7	.7
Canadian Western Natural Gas Company Ltd.	GO-6-84	2.6	-	4.0
	GO-5-85	1.6	1.5	3.1
	GO-69-86	-	.3	.3
Consolidated Natural Gas Limited	GLI-5 ^a	338.6	303.4	5 964.2
ICG Transmission Holdings Ltd.	GL-30 ^b	171.8	175.8	4 242.4
TransCanada Pipelines Limited	GL-21 ^c	5 131.6	6 404.1	104 221.2
	GL-42 ^c	1 909.9	2 383.4	32 797.0
	GO-83-86 ^d	-	3.7	3.7
Union Gas Limited	GO-5-86	-	55.8	55.8
	GO-41-86	-	56.7	56.7
	GO-55-86	-	56.7	56.7
	GO-68-86	-	48.4	48.4
	GO-82-86	-	41.1	41.1
GROSS IMPORTS		7 556.8	9 531.6	147 513.8
NET IMPORTS ^e		5.1	261.2	285.2

a — This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Man. pursuant to licence GL-44.

b — This licence authorizes an import of natural gas which the licensee has previously exported near Sprague, Man.

c — This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Man. This natural gas serves Canadian markets.

d — This licence authorizes an import of natural gas which the licensee will subsequently export near Niagara Falls, Ont.

e — Excludes volumes of licences/orders under footnotes.

Gas

10. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1985 Actual	1986 Preliminary
PROPANE			
Amoco Canada Petroleum Company Limited	GL-32	92 696	92 696
	EPR-918-79 ^a	924 572	811 117
	EPR-933-85 ^b	574	N/A
	EPR-934-86 ^b	N/A	2 239
Cochin Pipeline Ltd.	EPR-932-85 ^a	3 923	N/A
Dome Petroleum Limited	GL-31	133 254	133 254
	GL-917-79 ^a	803 539	708 400
	GL-930-84 ^b	334 038	384 040
Imperial Oil Limited	EPR-922-80 ^a	90 833	0
PanCanadian Gas Products Limited	GL-34	0	0
	EPR-919-79 ^a	259 896	240 782
Petro-Canada Inc.	EPR-931-85 ^b	299	0
	EPR-934-86 ^b	N/A	0
Procor Limited	EPR-935-86 ^b	N/A	0
GROSS EXPORTS		2 646 360	2 372 528
NET EXPORTS ^c		225 950	225 950
BUTANES			
Amoco Canada Petroleum Company Limited	EBU-133-74 ^a	574 504	517 216
	EBU-932-85 ^b	6 486	N/A
	EBU-933-86 ^b	N/A	7 958
Cochin Pipeline Ltd.	EBU-931-85 ^a	1 619	N/A
Dome Petroleum Limited	EBU-132-74 ^a	608 932	634 089
	EBU-929-84 ^b	279 163	274 498
Imperial Oil Limited	EBU-911-80 ^a	58 723	0
PanCanadian Gas Products Limited	EBU-134-74 ^a	113 210	102 016
Petro-Canada Inc.	EBU-930-85 ^b	0	0
	EBU-934-86 ^b	N/A	0
Procor Limited	EBU-935-86 ^b	N/A	0
Texaco Canada Incorporated	EBU-916-82 ^a	82 602	1 201
GROSS EXPORTS		1 725 239	1 536 978
NET EXPORTS ^c		0	0

Gas

10. (cont'd) Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1985 Actual	1986 Preliminary
ETHANE			
Dome Petroleum Limited	GL-47	822 686	N/A
	GL-51	2 368 413	814 816
	GO-1-76 ^a	0	0
GROSS EXPORTS		3 191 099	814 816
NET EXPORTS ^c	GL-47	364 556	N/A
	GL-51	1 246 010	317 672
		1 610 566	317 672
Kilograms			
EHTYLENE			
Dow Chemical of Canada Limited	EYL-1-76 ^d	0	0
	EYL-2-76 ^a	156 093 364	141 351 027
GROSS EXPORTS		156 093 344	141 351 027
NET EXPORTS ^c		0	0

a — This licence/order authorizes an export of product for subsequent import.

b — This is an import-export licence/order whereby product exported has been previously imported.

c — Excludes volumes of licences/orders under footnotes.

d — This licence authorizes an export of ethylene at Elmore, Sask. with the provision that the exported product may be imported at Windsor, Ont. and re-exported at Sarnia or Windsor, Ont. In 1983 and 1984, all that was exported at Elmore, Sask. was imported at Windsor, Ont., and there was no further movement of the product.

N/A Not Applicable

Gas

11. Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1985 Actual	1986 Preliminary
PROPANE			
Amoco Canada Petroleum Company Limited	EPR-918-79 ^a	924 640	821 022
	EPR-933-85 ^b	574	N/A
	EPR-934-86 ^b	N/A	2 239
Cochin Pipeline Ltd.	EPR-932-85 ^a	3 923	N/A
Dome Petroleum Limited	GL-917-79 ^a	754 077	720 778
	GL-930-84 ^b	393 743	403 922
Imperial Oil Limited	EPR-922-80 ^a	90 833	0
PanCanadian Gas Products Limited	EPR-919-79 ^a	262 632	27 837
Petro-Canada Inc.	EPR-931-85 ^a	285	0
	EPR-934-86 ^b	N/A	3 065
Procor Limited	EPR-935-86 ^b	N/A	0
GROSS IMPORTS		2 430 707	1 978 863
NET IMPORTS ^c		0	0
BUTANES			
Amoco Canada Petroleum Company Limited	EBU-133-74 ^a	571 187	520 204
	EBU-932-85 ^b	6 486	N/A
	EBU-933-86 ^b	N/A	7 958
Cochin Pipeline Ltd.	EBU-931-85 ^a	1 619	N/A
Dome Petroleum Limited	EBU-132-74 ^a	606 483	653 951
	EBU-929-84 ^b	279 815	270 746
Imperial Oil Limited	EBU-911-80 ^a	58 723	0
PanCanadian Gas Products Limited	EBU-134-74 ^a	113 210	102 016
Petro-Canada Inc.	EBU-930-85 ^a	0	0
	EBU-934-86 ^b	N/A	0
Procor Limited	EBU-935-86 ^b	N/A	0
Texaco Canada Incorporated	EBU-916-82 ^a	81 001	1 201
GROSS IMPORTS		1 718 524	1 556 076
NET IMPORTS ^c		0	0

Gas

11. (cont'd) Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1985 Actual	1986 Preliminary
ETHANE			
Dome Petroleum Limited	GO-1-76 ^a	0	0
	GL-47	406 153	N/A
	GL-51	1 030 967	499 883
	GO-3-84	43 339	N/A
	GO-3-85	25 056	N/A
	GO-7-85	8 386	77 886
	GO-33-86	N/A	79 981
	GO-85-86	N/A	32 980
GROSS IMPORTS		1 513 961	690 730
NET IMPORTS ^c			
	GO-3-84	43 339	N/A
	GO-3-85	25 056	N/A
	GO-7-85	8 386	77 886
	GO-33-86	N/A	79 981
	GO-85-86	N/A	32 980
		76 781	190 847
Kilograms			
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76 ^d	0	0
	EYL-2-76 ^a	156 093 364	138 633 421
GROSS IMPORTS		156 093 344	138 633 421
NET IMPORTS ^c		0	0

a — This licence/order authorizes an import of product which has been previously exported.

b — This is an import-export licence/order whereby product imported is subsequently exported.

c — Excludes volumes of licences/orders under footnotes.

d — This licence authorizes an import of ethylene which has been previously exported at Elmore, Sask. with the provision that the imported product at Windsor, Ont. may be re-exported at Sarnia or Windsor, Ont. In 1983 and 1984, all that was exported at Elmore, Sask. was imported at Windsor, Ont., and there was no further movement of the product.

N/A Not Applicable

Gas

12. Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butanes	
	1985 Actual	1986 Preliminary	1985 Actual	1986 Preliminary
Amoco Canada Petroleum Company Ltd. ^a	332 114	290 428	389 104	390 710
Atlantic Speedy Propane Limited	491	1 364	N/A	N/A
Burnell Gas of Canada Ltd.	42 943	27 353	N/A	N/A
Can-Am Liquids Corp. Ltd.	12 865	11 414	2 631	1 294
Canadian Enterprise Gas Products Ltd.	23 809	12 063	28 035	24 802
Canadian Superior Oil Ltd.	45 342	32 577	90 703	48 331
CanPet Marketing Ltd.	N/A	2 299	N/A	706
Canstates Energy	37 170	57 196	38 018	83 173
Chevron Canada Resources Ltd.	104 508	20 599	1 617	0
Consolidated Gathering Systems Limited	N/A	8 185	N/A	1 958
Consumers' Co-Operative Refineries Limited	1 344	1 956	0	0
Dillingham Construction Ltd.	361	N/A	N/A	N/A
Dome Petroleum Limited ^a	739 063	684 439	636 684	546 385
Dominion Propane Corp.	478	0	N/A	N/A
Elbow River Resources	0	0	0	0
Elgin Resources Limited	1 279	6 838	5 725	2 161
Gas Supply (Minn.) Ltd.	5 268	N/A	485	N/A
Gulf Canada Resources Inc.	151 588	6 445	474	2 009
Gulliver Energy Ltd.	0	122	738	495
Home Oil Company Limited	35 178	11 212	55 870	28 209
Husky Oil Operations Ltd.	0	654	0	817
ICG Liquid Gas Ltd.	57 705	41 924	N/A	N/A
Imperial Oil Limited	210 590	242 505	316 837	325 004
Kildair Service Ltee	590	0	N/A	0
Koch Hydrocarbons Canada	3 193	0	56 270	21 011
M-P Oils Limited	5 081	3 337	17 421	6 087
Mobil Oil Canada Ltd.	90 145	50 023	22 116	53 920
NGL Supply (1985) Ltd.	574	1 086	6 409	0
Northern Petro Products Corp. Ltd.	0	N/A	0	N/A
Olco Oil	0	0	N/A	N/A
PanCanadian Gas Products Limited ^a	204 518	137 448	110 689	115 471
Petro-Canada Inc.	377 852	273 572	267 969	285 583
Petrosol International Inc.	N/A	10 000	N/A	0
Petrowest Petroleum Ltd.	10 130	19 226	7 203	13 525
Pounder Emulsions Ltd.	1 379	N/A	1 975	N/A
Raymond Gas Liquids Marketing Ltd.	13 786	14 995	20 257	29 486
Rivecal Energy Ltd.	0	0	0	0
Shell Canada Limited	183 143	163 518	171 821	243 232
Stephens Energy Limited	48 560	25 682	82 500	31 645
Stittco Energy Limited	0	5 077	0	0
Sunoco Inc.	5 970	12 245	6 402	14 740
Texaco Canada Inc.	88 842	66 670	116 090	74 188
Ultramar Canada Inc.	0	0	0	0
Unocal Canada Limited	12/869	8 285	729	486
Westcan Energy Ltd.	349	9 392	9 394	4 830
TOTAL	2 849 077	2 260 399	2 464 166	2 350 258

a — Includes net export volumes under licences.

N/A Not Applicable

Oil

1. Certificates Issued During 1986 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

Applicant	Certificate No.	Issued	Facilities	Estimated Cost(\$)
Interprovincial Pipe Line Limited	OC-37	86-05-02	Construction of pipeline facilities consisting of 2 km of 457 mm O.D. pipeline, 538 km of 508mm O.D. pipeline, and 5 loops of 1219 mm O.D. pipeline totalling 8.4 km, Manitoba and Saskatchewan	235 000 000

Oil

2. Orders Issued During 1986 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost(\$)
Cochin Pipe Lines Ltd.	XO-3-86	86-04-16	Modifications and additions to pump and meter station, Saskatchewan	605 000
Dome NGL Pipeline Ltd.	XO-2-86	86-04-03	Modifications and additions to pump and meter stations, Ontario	160 000
Polysar Hydrocarbons Limited	XO-1-86	86-04-07	Construction/Purchase of NGL pipeline system consisting of 6.6 km of 219 mm O.D. pipeline and three spare river crossing pipes, Ontario	2 560 000

Oil

3. Orders Issued During 1986 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost(\$)
Cochin Pipe Lines Ltd.	XOM-6-86	86-04-03	Modifications to the supervisory computer system	82 280
Interprovincial Pipe Line Limited	XOM-5-86	86-03-27	Main line leak repairs, tankage modifications, general plant	974 600
Interprovincial Pipe Line Limited	XOM-10-86	86-06-18	Replacement of station piping	1 760 000
Interprovincial Pipe Line Limited	XOM-12-86	86-07-30	Tankage modifications	187 000
Interprovincial Pipe Line Limited	XOM-14-86	86-08-13	Metering facilities and general plant	3 046 000
Interprovincial Pipe Line Limited	XOM-18-86	86-09-24	Pump station modifications and upgrading of facilities, tankage, meter facilities and general plant	22 061 700
Interprovincial Pipe Line Limited	XOM-20-86	86-11-19	Computer equipment	1 870 000
Interprovincial Pipe Line (NW) Ltd.	XOM-15-86	86-08-20	Pumping and metering facilities general plant and mobile equipment	777 400
Manito Pipelines Ltd.	XOM-8-86	86-06-11	Pumping and metering facilities improvements, upgrading of station equipment, transportation	709 500
Manito Pipelines Ltd.	XOM-9-86	86-06-11	Pumping facilities	344 850
Manito PipeLines Ltd.	XOM-22-86	86-11-26	Piping modifications	29 000
Montreal Pipe Line Limited	XOM-3-86	86-02-06	Installation of swamp weights on 457 mm O.D. line	385 000
Montreal Pipe Line Limited	XOM-4-86	86-03-12	Computer equipment, sensing devices and general plant	136 000
Murphy Oil Company Ltd.	XOM-13-86	86-07-30	Pump station equipment	255 000
Petroleum Transmission Company	XOM-1-86	86-04-16	Pump station equipment	33 000
Sun Pipe Line Company	XOM-11-86	86-06-25	Modifications to pipeline system	104 000
Trans Mountain Pipe Line Company Ltd.	XOM-2-86	86-01-29	Control and data processing systems, data processing hardware and software	1 492 260
Trans Mountain Pipe Line Company Ltd.	XOM-17-86	86-09-10	Delivery lines, SCADA system and measurement facilities	2 490 500
Trans Mountain Pipe Line Company Ltd.	XOM-21-86	86-11-26	Pipe replacement, pump station equipment, tanks and general plant	12 035 000
Trans-Northern Pipelines Inc.	XOM-7-86	86-07-02	Additional pipeline facilities, pump station facilities, line automation and communication facilities	1 286 000
Trans-Northern Pipelines Inc.	XOM-16-86	86-08-20	Pump and meter station modifications	140 000
Trans-Northern Pipelines Inc.	MO-56-86	86-07-09	Modifications to Ottawa Booster Station	40 000
Wascana Pipe Line Ltd.	XOM-19-86	86-09-22	Pipeline tie-in and scraper trap assembly	16 000

Oil

4. Exports of Petroleum Products (Cubic Metres)

Month	Motor Gasoline	Middle Distillate	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total
January	134 337	234 837	16 219	91 269	0	476 662
February	196 393	160 448	24 034	59 951	0	440 826
March	143 800	290 280	12 774	110 243	0	557 097
April	225 147	261 116	23 852	105 519	45 729	661 363
May	190 216	234 505	78 683	61 572	41 027	606 003
June	185 483	204 264	31 305	164 315	0	585 367
July	161 460	249 180	33 855	94 493	0	538 988
August	148 500	290 080	20 438	157 838	0	616 856
September	219 410	289 312	95 670	120 769	35 050	760 211
October	170 398	244 659	51 566	120 396	53 292	640 311
November	100 327	197 133	59 857	166 908	0	524 225
December	221 599	351 719	41 418	123 501	0	738 237
TOTAL	2 097 070	3 007 533	489 671	1 376 774	175 098	7 146 146

Oil

5. Exports of Canadian Crude and Equivalent—1985 and 1986 (Cubic Metres)

Company	Destination	1985	Daily Average	1986	Daily Average
		Total		Total	
Amoco Production Company	Texas City, Texas	1 809 393	4 957	283 850	777
	Whiting, Indiana	0	0	1 115 149	3 055
Ashland Oil Inc.	Canton, Ohio	138 799	380	0	0
	St. Paul, Minnesota	654 622	1 793	578 000	1 583
Avant Petroleum Inc.	Nederland, Texas	22 156	60	0	0
	Chicago, Illinois	24 366	66	0	0
Border Fuel Supply	Billings, Montana	0	0	2 476	6
CGS Energy Inc.	Blue Island, Illinois	0	0	23 922	65
Challenger Petroleum	Anacortes, Washington	0	0	25 000	68
Citgo Petroleum Corporation	Gulf Coast, U.S.A.	39 643	108	0	0
Clark Oil & Refining Corporation	Blue Island, Illinois	2 056 461	5 634	2 111 949	5 786
Coastal States Trading Inc.	Gulf Coast, U.S.A.	60 283	165	0	0
Conoco Inc.	Billings, Montana	1 097 780	3 007	1 643 295	4 502
Consumers Power	Marysville, Michigan	29 823	81	0	0
Crystal Refining	Carson City, Michigan	31 911	87	23 429	64
Exxon Company, U.S.A.	Billings, Montana	333 838	914	785 555	2 152
	Texas City, Texas	0	0	36 889	101
Farmers Union Central Exchange	Laurel, Montana	922 511	2 527	1 168 332	3 200
Gladieux Refining Co.	Fort Wayne, Indiana	18 493	50	0	0
Gotco N.V.	Anacortes, Washington	0	0	71 706	196
Hill Petroleum Company	Houston, Texas	0	0	365 905	1 002
Koch Refining Company	Pine Bend, Minnesota	7 662 911	20 994	8 494 171	23 271
Laketon Refining Corp.	Laketon, Indiana	392 434	1 075	203 123	556
Lyondell Petrochem Company	Houston, Texas	0	0	42 795	117
Marathon Petroleum Company	Detroit, Michigan	694 415	1 902	367 560	1 007
Mitsui and Company (Canada) Ltd.	Chita, Japan	0	0	50 414	138
Mobil Oil Corporation	Ferndale, Washington	94 516	258	0	0
	Joliet, Illinois	4 065 209	11 137	3 624 963	9 931
Montana Refining Company	Great Falls, Montana	29 287	80	56 637	155
Murphy Oil USA Inc.	Anacortes, Washington	0	0	24 825	68
	Chicago, Illinois	9 939	27	0	0
	Great Falls, Montana	6 112	16	0	0
	St. Paul, Minnesota	0	0	9 810	26
	Superior, Wisconsin	362 608	993	354 834	972
NOCO Energy Corp.	Tonawanda, New York	154 351	422	252 015	690
Petrogulf Oil and Refining Ltd.	Gulf Coast, U.S.A.	41 349	113	0	0
Phibro Energy Inc.	Gulf Coast, U.S.A.	50 219	137	0	0
	La Jet, Louisiana	45 346	124	0	0
	Philadelphia, Pennsylvania	38 131	104	0	0
	St. Paul, Minnesota	53 761	147	98 817	270
Providence Petroleum Inc.	Gulf Coast, U.S.A.	48 393	132	0	0
Rock Island Refining Corporation	Rock Island, Indiana	871	2	0	0
Shell Oil Company	Anacortes, Washington	237 516	650	737 742	2 021
Standard Oil Company	Toledo, Ohio	120 574	330	222 465	609
Sun International	Philadelphia, Pennsylvania	0	0	97 991	268
Sun Oil Trading Company	Chicago, Illinois	35 670	97	0	0
	East Coast, U.S.A.	194 851	533	0	0
	Gulf Coast, U.S.A.	210 864	577	44 010	120
	Marysville, Michigan	274 494	752	0	0
	Toledo, Ohio	244 564	670	0	0

Oil

5. (cont'd) Exports of Canadian Crude and Equivalent—1985 and 1986 (Cubic Metres)

Company	Destination	1985	Daily	1986	Daily
		Total	Average	Total	Average
Sun Refining and Marketing Company	Toledo, Ohio	0	0	2 238 270	6 132
Texaco Trader International	Chicago, Illinois	0	0	23 732	65
	Whiting, Indiana	0	0	30 100	82
Texaco U.S.A.	Anacortes, Washington	362 628	993	390 692	1 070
	Delaware, Delaware	0	0	99 986	273
Total Petroleum, Inc.	Alma, Michigan	124 746	341	96 317	263
	Toledo, Ohio	37 967	104	0	0
Transworld Oil Limited	Busan, Korea	0	0	138 763	380
	Carson City, Michigan	0	0	19 268	52
	Chicago, Illinois	0	0	97 358	266
	Delaware, Delaware	0	0	14 922	40
	Philadelphia, Pennsylvania	0	0	53 024	145
	Superior, Wisconsin	0	0	21 700	59
	Toledo, Ohio	0	0	165 312	452
U.S. Oil & Refining Co.	Anacortes, Washington	85 543	234	156 482	428
	Blue Island, Illinois	0	0	27 712	75
	Toledo, Ohio	721 279	1 976	787 666	2 157
UPG Falco	Mokena, Illinois	11 897	32	0	0
	St. Rose, Louisiana	59 625	163	0	0
	Toledo, Ohio	13 963	38	2 147	5
Union Oil Company of California	Lemont, Illinois	1 263 538	3 461	3 844 419	10 532
United Refining Company	Warren, Pennsylvania	2 432 703	6 664	3 037 128	8 320
Various	Various	68 405	187	3 831	10
TOTAL		27 490 758	75 294	34 166 458	93 582

5(a) Exports of Canadian Crude and Equivalent (Cubic metres per day)

	1985	1986
Light Crude Oil and Equivalent:	33 406	41 281
Heavy Crude Oil:	41 888	52 301
Total	75 294	93 582

Electricity

1. Certificates Issued During 1986 Approving an International Power Line

No Certificates were issued in 1986

Electricity

2. Order Issued During 1986 Relating to International Power Lines

Applicant	Order No.	Issued	Facilities
1. Hydro-Québec	XE-1-86	21 Jan. 1986	One international power line extending from the distribution transformer designated as M2KIC, to a point on the international boundary line located 10 metres north-east of marker no. 353A in the municipality of Saint-Théophile. This single circuit single phase line operates at a nominal voltage of 120/240 volts.

Electricity

3. Licences Issued During 1986 to Export Electric Power and Energy

No Licences were issued in 1986

Orders Issued During 1986 Relating to Export of Electric Power and Energy

4(a) Orders issued pursuant to Section 7 of the Part VI Regulations.

Applicant	Order No.	Issued	Class	Kilowatts	Annual Kilowatt Hours	Term	
						From	To
1. Boise Cascade Canada Ltd.	ELO-211	5 Jun. 1986	Firm	8 000	70 000 000	86-07-01	89-06-30
2. Manitoba Hydro	ELO-210	22 Apr. 1986	Firm	12	15 000	86-08-01	89-07-31
3. The New Brunswick Electric Power Commission	ELO-209	26 Mar. 1986	Firm	50 000	36 000 000	86-04-01	86-04-30
4. The New Brunswick Electric Power Commission	ELO-212	23 Dec. 1986	Firm	50 000	250 000 000	87-01-01	88-10-31

4(b) Amending orders issued relating to power and energy

Applicant	Order No.	Issued	Comments
1. Cominco Ltd.	AO-1-EL-146	9 Oct. 1986	Amendment reflecting the intent of the Board at the time it inserted condition 5 in the Licence.
2. Cominco Ltd.	AO-1-EL-147	9 Oct. 1986	Amendment reflecting the intent of the Board at the time it inserted conditions 7 and 8 in the Licence
3. Cominco Ltd	AO-1-EL-148	9 Oct. 1986	Amendment reflecting the intent of the Board at the time it inserted condition 6 in the Licence.
4. Hydro-Québec	AO-1-ELO-196	21 Jan. 1986	Amendment authorizing export over the international power line authorized by Order XE-1-86.
5. Hydro-Québec	AO-1-EL-167	20 Mar. 1986	Amendment modifying the effective date of Licence EL-167.
6. The New Brunswick Electric Power Commission	AO-1-EL-140	3 Apr. 1986	Amendment reflecting the intent of the Board at the time it inserted condition 5 in the Licence.
7. The New Brunswick Electric Power Commission	AO-1-ELO-201	18 Nov. 1986	Amendment increasing the quantity of power and energy authorized by ELO-201.
8. St. Lawrence	AO-1-EL-159	30 Jan. 1986	Amendment reflecting the Board's approval of an agreement with Niagara Mohawk Corporation.

4(c) Revoking orders issued pursuant to subsection 84(3)

Applicant	Order No.	Issued	Comments
1. Hydro-Québec	RO-EL-173	9 Jul. 1986	Order revoking licence EL-173, to be effective 9 Jul. 1986.

Electricity

5. Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export		
		Firm	Interruptible	Firm	Interruptible	Exchange ^a	Firm	Interruptible	
NEW BRUNSWICK									
1. Fraser Inc.	EL-122	400 000	—	376 190	—	—	16 530 019	—	
	EL-123	—	50 000	—	—	—	—	—	
2. Maine and New Brunswick Electrical Power Company Limited	EL-22	250 000	—	119 326	—	—	—	—	
	EL-23	—	25 000	—	—	—	1 556 970	—	
3. The New Brunswick * Electric Power Commission	EL-64	3 504 000	—	—	—	—	—	—	
	EL-137	876 000	—	823 586	—	—	—	—	
	EL-138	876 000	—	823 586	—	-7 193	54 063 740	—	
	EL-139	92 000	—	44 566	—	-7 193	58 956 871	—	
	EL-140	—	6 482 400 ^b	—	—	-2 892	3 214 441	—	
	EL-141	1 226 400	—	—	4 091 977	-1 146	—	122 303 296	
	EL-142	140 000	—	—	—	410 846	—	—	
	EL-143	—	300 000	—	—	—	—	—	
	EL-144	250 000	—	—	128 814	-33 850	—	5 543 471	
	EL-145	—	179 000	—	—	—	—	—	
	EL-150	1 138 000	—	—	9 298	-1 388	—	269 508	
	ELO-197	50	—	205 896	—	-1 798	14 154 009	—	
	ELO-201	—	—	—	—	—	—	—	
to	ELO-203	445	—	—	—	—	—	—	
	*ELO-206	230 000	—	280	—	—	25 326	—	
	*ELO-209	36 000	—	3 555	—	—	1 229 867	—	
				25 094	—	—	1 023 749	—	
TOTAL				2 422 079	4 230 089	355 386	150 754 992	128 116 275	
QUEBEC									
4. Cedars Rapids Transmission Company Limited	ELO-207	20 000	—	—	—	—	—	—	
5. Hydro-Québec	EL-96	3 000 000	—	3 000 000	—	—	125 582 641	—	
	EL-151	—	7 000 000	—	208 277	—	—	6 569 876	
	EL-152	—	23 564 000 ^e	—	1 236 448	—	—	31 367 332	
	EL-153	—	23 564 000 ^e	—	5 336 699	899	—	124 157 328	
	EL-154	11 220 000 ^d	—	—	—	—	—	—	
	EL-155	13 140 000 ^d	—	—	—	—	—	—	
	EL-156	25 000	—	11 947	—	—	378 945	—	
	EL-165	—	3 000 000	—	—	—	—	—	
	EL-166	—	3 000 000	—	—	—	—	—	
	EL-167	—	6 920 000 ^e	—	626 286	—	—	13 962 851	
	EL-168	1 314 000	—	—	759 502	33 094	—	17 820 371	
	EL-169	—	1 752 000 ^f	988 808	—	—	45 370 691	—	
	EL-171	205 000	—	—	347 755	285	—	7 045 007	
	EL-172	657 000 ^g	—	64 041	—	—	3 304 827	—	
	ELO-180	—	—	59 834	—	—	2 770 942	—	
to	ELO-182	—	—	—	—	—	—	—	
and	ELO-189	—	—	—	—	—	—	—	
to	ELO-196	1 807	—	258	—	—	13 501	—	
TOTAL				4 124 888	8 514 967	34 278	177 421 547	200 922 765	

Electricity

(cont'd) Exports of Electric Energy (Megawatt Hours)

Porter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange ^a	Firm	Interruptible
ONTARIO								
6. Boise Cascade Canada Ltd.	ELO-177	—	70 000	—	328	—	—	8 557
7. Canadian Niagara Power Company Limited	EL-161	—	500 000	—	426 851	3 237	—	15 770 808
8. The Canadian Transit Company	ELO-199	25	—	24	—	—	—	—
9. The Detroit and Windsor Subway Company	ELO-204	2 000	—	1 047	—	—	—	—
10. Ontario Hydro	EL-32	15 000	—	1 003	—	—	2 006	—
	EL-134	—	10 000 000	—	—	1 155 564	—	—
	EL-135	10 500 000	—	2 811 322	—	—	138 367 310	—
	EL-136	—	25 000 000 ^h	—	3 217 613	32 551	—	108 216 681
	ELO-198	200	—	34	—	—	2 333	—
11. St. Lawrence Power Company	EL-158	—	250 000	—	—	938	—	—
	EL-159	—	150 000	—	63 650	—	—	1 904 189
	EL-160	—	150 000	—	—	6 913	—	—
	ELO-188	—	250 000	—	235 571	—	—	6 072 075
TOTAL				2 813 430	3 944 013	1 199 203	138 371 649	131 972 310
MANITOBA								
12. Manitoba Hydro	EL-97	—	1 500 000	—	2 098 382	—	—	29 625 159
	EL-98	876 000	—	39 020	—	—	4 079 414	—
	EL-99	262 800	—	46 200	—	—	895 371	—
	EL-100	800 000	—	—	—	—	—	—
	EL-101	2 500 000	—	—	—	17 884	—	—
	EL-102	3 270 000	—	—	—	—	—	—
	EL-103	—	12 000 000 ⁱ	—	4 823 255	-37 214	—	77 086 334
	ELO-176	—	—	—	—	—	—	—
and	ELO-200	7 899	—	1 729	—	—	67 347	—
TOTAL				86 949	6 921 637	-19 330	5 042 132	106 711 493
SASKATCHEWAN								
13. Saskatchewan Power	*EL-117	438 000	—	—	—	—	—	—
	EL-118	438 000 ^j	—	11 645	—	—	—	—
	EL-119	—	876 000 ^k	—	98 238	41 045	—	1 169 338
	EL-120	876 000 ^k	—	—	—	—	—	—
TOTAL				11 645	98 238	41 045	—	1 169 338

Electricity

5. (cont'd) Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange ^a	Firm	Interruptible
BRITISH COLUMBIA								
14. British Columbia Hydro and Power Authority	EL-162	6 000 000	—	283 641	—	—	8 772 316	—
	EL-163	—	15 000 000 ^l	—	1 640 119	1 150 552	—	33 235 454
	EL-164	—	3 000 000	—	—	569 022	—	—
	ELO-179	—	—	—	—	—	—	—
and	ELO-205	15 500	—	13 315	—	—	596 045	—
	***m	—	—	—	—	314 715	—	—
15. Cominco Ltd.	EL-146	50 000	—	—	—	—	—	—
	EL-147	—	1 100 000	—	166 120	—	—	1 500 581
	EL-148	250 000	—	—	—	18 371	—	—
	EL-149	—	1 000 000	—	—	—	—	—
16. West Kootenay Power and Light Company	ELO-187	50	—	49	—	—	2 027	—
TOTAL				297 005	1 806 239	2 052 660	9 370 388	34 736 035
TOTAL CANADA ⁿ				9 755 996	25 515 183	3 663 242	480 960 708	603 628 216

a — Exchange is no value energy. It includes inadvertent and circulating flow, equichange, storage adjustment transfer and wheeling or carrier transfer.

b — Total exports should not exceed 6 482.4 GW.h when combined with the amounts exported under Licences EL-64, EL-137, EL-138, EL-150 and Order ELO-206.

c — Total exports not to exceed 23 564 GW.h when combined with exports made pursuant to another licence under which the energy is transmitted over the lines authorized by Certificates of Public Convenience and Necessity EC-III-15 and EC-10.

d — Total exports under EL-154 and EL-155 should not exceed 13 140 GW.h when combined together.

e — Total exports should not exceed 6 920 GW.h when combined with the amount exported under Licences EL-165 and EL-166.

f — Total exports should not exceed 1752 GW.h when combined with the amounts exported under Licence EL-168.

g — Total exports should not exceed 657 GW.h when combined with the amounts exported under Licence EL-171.

h — Total exports should not exceed 25 000 GW.h when combined with the amount exported under Licence EL-135.

i — Total exports should not exceed 12 000 GW.h when combined with the amounts exported under Licences EL-97, EL-98, EL-99, EL-100, EL-101 and EL-102.

j — No value energy, energy to be returned.

k — Total exports under Licences EL-119 and EL-120 should not exceed 876 GW.h. when combined together.

l — Total exports should not exceed 15 000 GW.h when combined with exports under Licence EL-162.

m — Energy exported in accordance with the Skagit River Valley Treaty which is not under the Board's jurisdiction.

n — Excludes \$633 139 revenue for wheeling, transmission, unit rental and storage transfer charges.

* Expired during 1986

Reasons for Decision Issued in 1986

1. "Dome/Windsor" - In The Matter of a Public Hearing into The Matter of Certain Terminal, Storage and Related Facilities Owned or Leased and Operated by Dome Petroleum Limited in Windsor, Ontario (HEARING ORDER: MH-5-85) - January 1986
2. "Nitrochem" - Nitrochem Inc. for Interim Orders and TransCanada PipeLines Notice of Motion to Dismiss the Interim Application of Nitrochem - January 1986
3. "TransCanada/Transcontinental" - TransCanada PipeLines Limited - Approval of a 1985 Precedent Agreement and Amendments to Associated Licence GL-88 for Sales to TransContinental Gas Pipe Line Corporation - February 1986
4. "ProGas/GL-80" - ProGas Limited - Amendments to Existing Natural Gas Export Sales Contract and Associated Licence GL-80 for Sales to Texas Eastern Transmission Corporation - February 1986
5. "West Kootenay" - West Kootenay Power and Light Company Limited - In The Matter of the Application for an Order Under Sections 11 and 12 of the National Energy Board Act - March 1986
6. "Interprovincial/Facilities" - Interprovincial Pipe Line Limited - In the Matter of an Application Under Section 44, Part III of the National Energy Board Act (HEARING ORDER: OH-3-85) - April 1986
7. "Omnibus - Phase I" - The Matter of Phase 1 - The Surplus Determination Procedures Phase of the Gas Export Omnibus Hearing, 1985 (HEARING ORDER: GH-2-85) - April 1986
8. "TransCanada/RH-5-85" - TransCanada PipeLines Limited - Availability of Services (HEARING ORDER: RH-5-85) - May 1986
9. "TransCanada/Oshawa Accident" - Report In The Matter of a Public Inquiry into an Accident at Kilometre-Post MLV133-1 + 16.3 km, North of Oshawa, Ontario on the Pipeline System Owned and Operated by TransCanada PipeLines Limited (HEARING ORDER: MH-1-86) - May 1986
10. "Interprovincial/Camrose Accident" - In The Matter of an Accident on 19 February 1985 Near Camrose, Alberta, on the Pipeline System of Interprovincial Pipe Line Limited (HEARING ORDER: MH-2-85) - June 1986
11. "TQM/Tolls" - Trans Québec & Maritimes Pipeline Inc. - Application dated 28 February 1986, as revised, for new tolls effective 1 January 1986 (HEARING ORDER: RH-2-86) - August 1986
12. "Westcoast/Tolls" - Westcoast Transmission Company Limited - Application dated 1 December 1985, as amended, for new tolls effective 1 January 1986 (HEARING ORDER: RH-6-85) - August 1986

13. "Trans Mountain/Tolls" - Trans Mountain Pipe Line Company Ltd. - In The Matter of an Application under Part IV of the National Energy Board Act (HEARING ORDER: RH-1-86) - September 1986
14. "ProGas/GL-98" - ProGas Limited - Amendment to GL-98 (HEARING ORDER: GH-4-86) - October 1986
15. "Alberta and Southern/Licences" - Alberta and Southern Gas Co. Ltd. - Consolidation of Licences GL-3, GL-16, GL-24, GL-35, GL-67, GL-68 and GL-69 including a Term Extension and Certain Other Changes - (HEARING ORDER: GH-4-86) October 1986
16. "Shell/Export" - Shell Canada Limited - Application for a Gas Export Licence - (HEARING ORDER: GH-2-86) - November 1986

Other Reports Issued in 1986

1. 1985 National Energy Board Annual Report - March 1986
2. Glossary of French-English Terminology Used at the National Energy Board - May 1986
3. Canadian Electric Utilities - Analysis of Generation and Trends - 1984 - May 1986
4. National Energy Board Report Pursuant to Access to Information Act and Privacy Act - 1 April 1985 to 31 March 1986 - June 1986
5. Exports of Petroleum Products - The First Year of "Deregulation" in Review - September 1986
6. Exports of Crude Oil - The First Year of Deregulation - November 1986
7. Canadian Energy Supply and Demand - 1985-2005 - October 1986

Copies of a new Office Consolidation of the Part VI Regulations, dated May 1986, are available from the Board.

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1987 Annual Report



National Energy Board

National Energy Board Profile

The National Energy Board is a federal regulatory tribunal that was created on 2 November 1959 by an Act of Parliament. During the past 28 years, it has played an important role in the development of Canada's energy sector.

The Board's regulatory powers under the *National Energy Board Act* include the licensing of oil, natural gas, and electricity exports, the certification of interprovincial and international pipelines and designated interprovincial and international power lines, and the setting of tolls and tariffs for oil and gas pipelines under federal jurisdiction.

The Act also requires that the Board keep under review the Canadian supply of all major energy commodities, with emphasis on electricity, oil, natural gas, and the by-products derived from oil and natural gas, as well as the demand for Canadian energy in Canada and in export markets.

The Board also has specific responsibilities under the *Northern Pipeline Act* and the *Energy Administration Act*. In addition, Board inspectors have been appointed safety officers by the Minister of Labour to administer Part IV of the *Canada Labour Code*.

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National Energy Board

31 March 1988

The Honourable Marcel Masse, P.C., M.P.
Minister of Energy, Mines and Resources
Ottawa, Ontario

Dear Mr. Masse:

I am pleased to submit the Annual Report of the National Energy Board for the year ending 31 December 1987 in accordance with the provisions of Section 91 of the National Energy Board Act, Revised Statutes of Canada, 1970, chapter N-6.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'R. Priddle', written in a cursive style.

R. Priddle,
Chairman

Metric Conversion Table

The National Energy Board uses the International System of Units (SI). The energy units most commonly referred to in this report are the gigajoule (GJ) and the petajoule (PJ). A 30-litre gasoline fill-up contains about one gigajoule of energy. A petajoule is one million gigajoules. On average, a city the size of Toronto or Montreal uses a petajoule of energy for all uses (heat, light, transportation, etc.) about every 17 hours.

The following conversion table is provided for the convenience of readers who may be more familiar with the Imperial System.

Approximate Conversion Factor

1 metre (m)	= 3.28 feet
1 kilometre (km)	= 0.62 mile
1 millimetre (mm)	= 0.039 inch
1 cubic metre (m ³) of oil	= 6.3 barrels
1 cubic metre (m ³) of natural gas	= 35.3 cubic feet
1 litre (L)	= 0.22 gallons
1 kilogram (kg)	= 2.20 pounds
1 gigajoule (GJ)	= 0.95 MMBtu, or 0.95 thousand cubic feet (Mcf) of natural gas at 1000 Btu/cf
1 petajoule (PJ)	= 0.95 billion cubic feet of natural gas, or 165 000 barrels of oil, or 0.28 terawatt hours of electricity

Abbreviations

gigajoule (GJ)	= 10 ⁹ J
terajoule (TJ)	= 10 ¹² J
petajoule (PJ)	= 10 ¹⁵ J
exajoule (EJ)	= 10 ¹⁸ J
kilowatt (KW)	= 10 ³ watts
megawatt (MW)	= 10 ³ KW
megawatt hour (MW.h)	= 10 ³ KW.h
gigawatt hour (GW.h)	= 10 ⁶ KW.h
terawatt hour (TW.h)	= 10 ⁹ KW.h

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Chairman's Letter

The Board had a busy 1987. Its activities ranged over the gamut of its statutory responsibilities, which include the provision of advice to the Minister, the certification of new pipelines, the regulation of tolls and tariffs, and the licensing of new exports. In this regard, the Board provided advice to the Minister of Energy, Mines and Resources, at his request, on the regulation of electricity exports. During the year, the Board made three major toll decisions on oil and gas pipelines; it dealt with applications for major new exports of natural gas and electricity; it decided on new natural gas surplus determination procedures; and, it continued to inquire into aspects of pipeline safety. At year-end, it was dealing with an application for a major expansion of the gas pipeline system serving eastern Canada and the northeastern United States.

The Board's hearing workload, about 172 days of hearings, was approximately the same as in 1985 and 1986. However, we are conscious of the need to achieve whatever economies and efficiencies are possible in the hearing process, while at the same time assuring a full and fair opportunity for all parties to be properly heard.

To this end, the Board seeks both to improve public hearings and to reduce their number and length where appropriate.

As to improving hearings, the Board sent a list of proposals to interested parties early in 1987 and received in return a large number of additional suggestions. At mid-year, the Board published a set of decisions on its proposals relating, first, to improvements which the Board itself could put in place and, second, to those requiring the co-operation of parties. At year-end, the Board made its initial views known in a third area, namely the suggestions of parties which would require, in some cases, changes in established regulatory policy. The Board expects to receive further comments in this area in early 1988 and will then issue its final views.

As to reducing the number of hearings, the Board's activity has been in two principal areas. First, it continues to reduce the number of companies subject to rigorous pipeline toll regulation: for example, in 1987 both Alberta Natural Gas and IPL (NW) were removed from this category. Second, it has tried where possible to set the tolls of the remaining pipeline companies for periods longer than one year: for example, in 1987, because the applications were filed late in the year, the Board set the tolls for TQM and Westcoast for the two years 1987 and 1988. There were, however, circumstances in regard to both these applications which might be exceptional and, of course, it may not be possible to deal with all applications for periods of two years.

The Board is very much aware of and responsive to the government's policies in the area of regulatory reform as they relate both to tribunals' processes and regulation of Canada's energy industries.

As to its regulatory process, the Board has initiated changes which will place the responsibility for approving crossings of pipelines and electricity transmission lines with the owners of those facilities. Board involvement in specific cases will then only arise where there are disputes to be resolved. When the new regulations are in place, later in 1988, they will eliminate the need for the Board to be involved in the processing and issuance of the majority of 800 pipeline crossing orders per year.

In the area of energy regulatory reform, the Board's decisions have had positive effects in 1987 on the freer working of Canadian energy markets.

Thus, in the matter of interprovincial gas transmission, there were 78 shippers of gas on TransCanada's system in the 1986-87 gas contract year. In 1984-85, there had been only four. Between November 1985 and April 1987 the Board issued 89 orders requiring TransCanada to provide carriage for other companies' gas. The Board was encouraged by TransCanada's April 1987 decision to enter voluntarily into carriage arrangements with new shippers: the Board's powers of compulsion have, therefore, for the most part been superseded by harmonious private sector arrangements.

In regard to oil markets, following completion in 1987 of an expansion of Interprovincial's pipeline system which the Board had found to be in the public interest, there was for the first time in three years no involuntary shut-in of western Canadian crude oil production. And from the standpoint of consumers of Canadian crude oil, there was as a further consequence the virtual elimination of differentials unfavourable to Canadian consumers in the price of oil flowing to domestic and export markets.

In both cases provincial authorities had taken congruent actions to enable these favourable effects for both producers and consumers of Canadian oil and gas.

As a consequence of less energy regulation, efficiencies in the application of remaining regulation, and economies in its own operations, the Board found a need to substantially reduce its staff. The total number, Board Members included, peaked at 460 in 1984. By early 1987, numbers had been progressively reduced to 420. A formal Workforce Adjustment Program is now being implemented which, by 1 April 1988, will have effected a reduction of a further 70. The Board will then be about the size that it was in the mid-1970s, that is, before the Northern Pipeline hearings and the National Energy Program. The public has been served efficiently and effectively during a period when staff numbers have been cut by about 25 percent, and I want to pay tribute to and express my appreciation of the staff in this achievement.

Further change to the Board's responsibilities in the area of energy exports and imports will result from implementation of the Free Trade Agreement between Canada and the United States. While the Board has been kept fully informed about the agreement and its implications, it is too early to say what impact, if any, implementation may have on the size of the staff necessary to properly discharge its responsibilities.

I am confident of the Board's ability to provide government with specialist energy advice and to dispense relevant regulation in those areas of energy transportation and energy trade where, because of the presence of natural monopolies and the existence of market power, economic regulation is still required. The Board is similarly experienced in matters relating to the approval of pipeline construction, the safeguarding of the environment, the optimization of socio-economic impacts and of human safety in pipelines. The nine Members of our Board, with varying professional qualifications and experience backgrounds, have in aggregate many decades of energy experience. They are supported by a well-qualified, experienced and dedicated staff. Our overriding interest is to best serve the public interest of Canada.

In this connection, I wish to recognize the sterling contribution made during 14 years' service as a Member, and seven years as Vice Chairman, of Ralph Brooks, originally of Saint John, New Brunswick. Mr. Brooks retired in November 1987. We were then pleased to welcome to the Board Jean-Guy Fredette of Montreal, Quebec, as a Member and Vice Chairman. I also want to pay tribute to Robert St.G. Stephens, who retired at the end of 1987 after six years of outstanding service as the Board's first Executive Director. We also welcome his successor, Robin D. Glass.

A handwritten signature in dark ink, appearing to read 'R. Priddle', with a stylized, cursive script.

R. Priddle

Energy Developments

Overview

International Oil Prices

While 1987 did not see the turmoil of 1986 on world oil markets, the year was characterized by uncertainty about the ability of the Organization of Petroleum Exporting Countries (OPEC) to maintain its target reference price. OPEC had established, effective 1 February 1987, a price of \$U.S. 18 per barrel based on a basket of seven international crude oils. It also set quotas for its 1987 oil production which averaged 16.2 million barrels per day. OPEC production, however, averaged close to 18 million barrels per day, near the level of 1986 and about 40 percent of world production (excluding the centrally planned economies).

OPEC's production in excess of its targets put downward pressure on international prices. West Texas Intermediate crude oil, which had risen from under \$U.S. 15 per barrel¹ during the fourth quarter of 1986 to almost \$U.S. 20 by mid-1987, fell to less than \$U.S. 18.50 in November. Further price declines were prevented by the escalation of hostilities in the Persian Gulf.

Against this background of over-production and the related possibility of further price declines, OPEC met in December 1987 to establish production quotas and the reference price for 1988. It was decided to maintain the quotas totalling 16.2 million barrels per day for the first six months of 1988 and to continue to target on a reference price of \$U.S. 18 per barrel.

Energy Production, Consumption and Trade

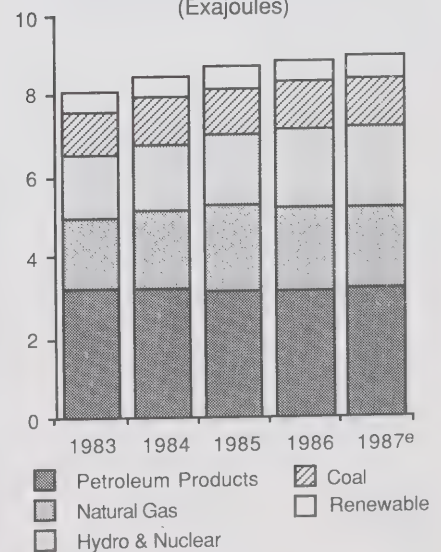
Strong economic growth in Canada and improved energy export markets led to increased energy production in 1987.

Primary energy demand in Canada in 1987 grew by 1.7 percent. Growth was mostly attributable to increased use of oil and hydroelectric power.

Petroleum exports rose during 1987, but imports also grew. As a result, net export volumes decreased slightly. However, net export revenues increased from under \$2 billion in 1986, to about \$3 billion in 1987, resulting from higher prices and larger net exports of higher-valued materials.

Electricity exports rose substantially during 1987 to reach a record level. The associated revenues also increased over 1986, but to a

Figure 1
Canadian Energy
Consumption
(Exajoules)



e - Estimate

Reference: Energy Overview
Appendix 1

1. Prices quoted are at Cushing, Oklahoma.

lesser extent, because export prices per unit were still being affected by low world oil prices.

Natural gas exports benefited from improved access to American markets. Export volumes rose from under 800 petajoules in 1986 to just over one exajoule (1 000 petajoules) in 1987. However, continued gas-to-gas competition in the United States led to lower export prices, resulting in revenues being only slightly higher than in 1986. Increased exports offset a weaker domestic market and natural gas production was up by eight percent.

Table 1
Canadian Trade in Petroleum, Gas and Electricity
(Petajoules and Billions of Dollars)

	1985		1986		1987 ^e	
	PJ	\$ Billions	PJ	\$ Billions	PJ	\$ Billions
Exports						
Petroleum ^a	1 560	9.1	1 745	5.8	1 858	7.1
Natural Gas	990	4.0	790	2.5	1 057	2.6
Electricity ^b	149	1.4	127	1.1	163	1.2
Total	2 699	14.5	2 662	9.4	3 078	10.9
Imports^c						
Petroleum ^a	775	4.8	944	4.0	1 092	4.4
Net Export Total	1 924	9.7	1 718	5.4	1 986	5.5

The numbers in this table have been rounded.

e - Estimate

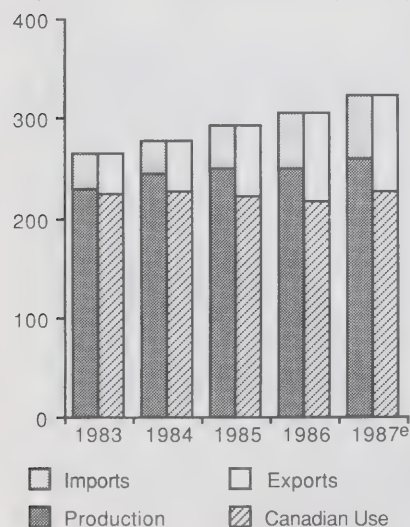
a - Includes petroleum products and natural gas liquids. Excludes exchanges between Canada and the United States.

b - Electricity is converted at 3.6 petajoules per terawatt hour on the basis of the energy content of the electricity output. Excludes exchanges between Canada and the United States.

c - Import quantities of natural gas and electricity were negligible.

Figure 2

Canadian Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)



e - Estimate

Reference: Energy Overview
Appendix 2

Crude Oil and Petroleum Products

Domestic Supply and Demand

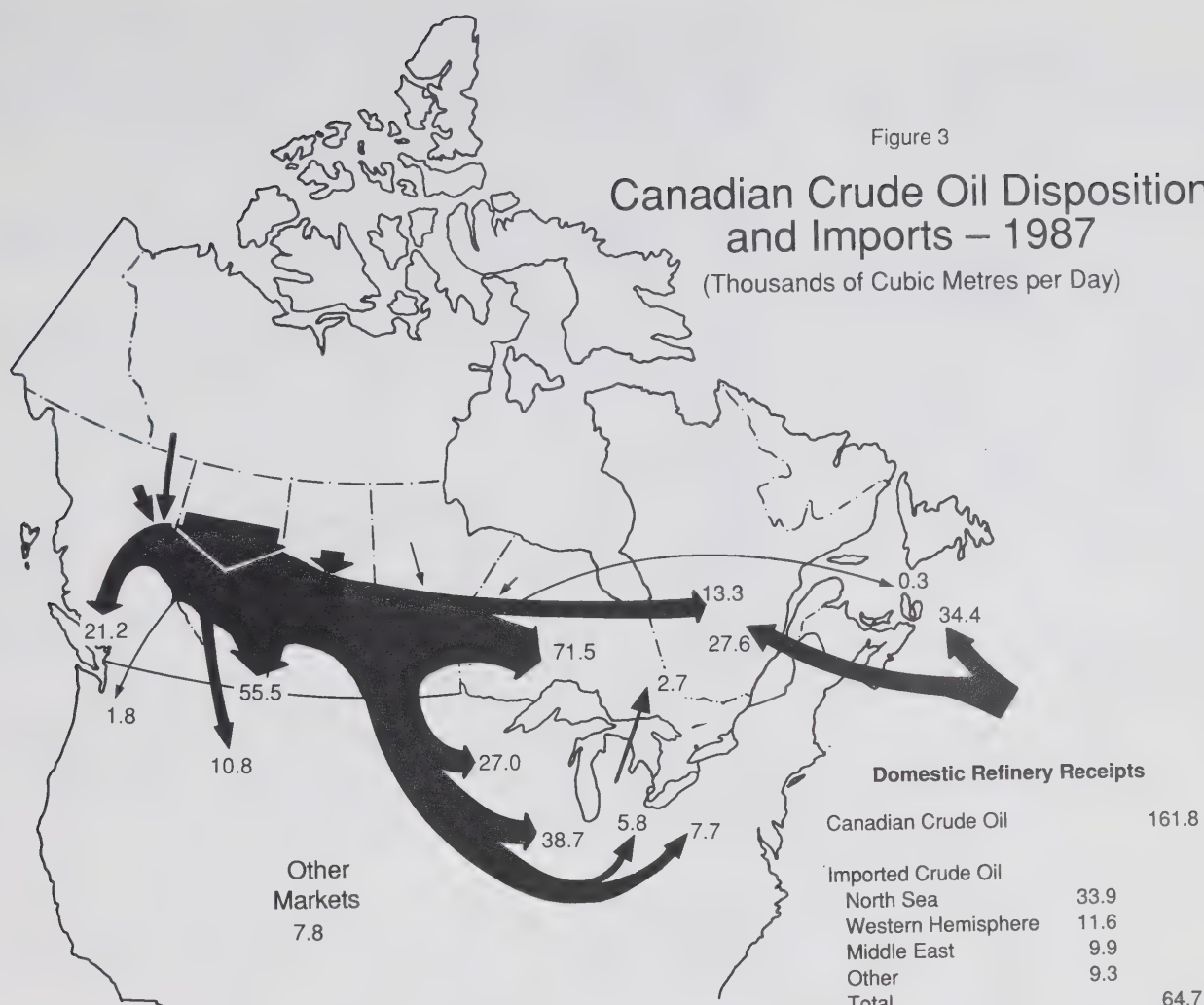
The volume of crude oil and equivalent¹ processed by Canadian refineries increased by five percent during 1987. This reflected growth in domestic demand for refined petroleum products, mainly petrochemicals, naphthas, jet fuels, and asphalt. Demand for gasoline and middle distillates was little changed. Use of heavy fuel oil use rose substantially, largely as a result of increased consumption by electrical utilities in the Atlantic provinces.

¹ Includes light and heavy crude oil, pentanes plus and synthetic crude oil, but excludes other feedstocks such as gas plant butanes and partially processed oil.

Figure 3

Canadian Crude Oil Disposition and Imports – 1987

(Thousands of Cubic Metres per Day)



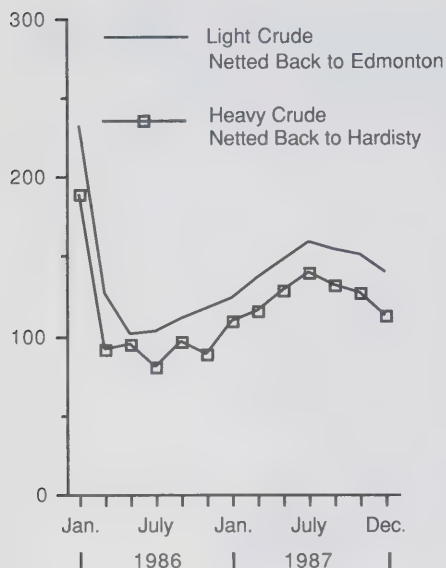
During 1987, receipts by Canadian refineries of domestic crude oil and equivalent were 162 000 cubic metres per day, an increase of one percent over 1986. Receipts of foreign feedstocks in 1987 were 65 000 cubic metres per day, 14 percent above the previous year's level. The increase in imports was, to a large extent, caused by the reopening of the Come-By-Chance refinery in September of 1987.

Canadian production of conventional light and medium crude oil increased by two percent to 152 200 cubic metres per day in 1987, largely as a result of the removal of pipeline capacity constraints.

During the first quarter of 1987, the volume of light crude oil shut in, mainly because of pipeline capacity constraints, was 20 000 cubic metres per day. The shut-in was eliminated during the last half of the year, as a result of two events. First, there were extensive revisions to the prorating system used by the Alberta Energy Resources Conservation Board which, in effect, provided producers and refiners complete freedom to sell and purchase Alberta oil. Secondly, there was an increase in the capacity of the Interprovincial pipeline system.

Figure 4

Crude Oil Average F.O.B. Export Price (\$Cdn. per Cubic



Synthetic crude oil plants operated at high output levels during the first three quarters of the year. However, because of a fire at the Suncor plant in October and the downtime for maintenance at Syncrude, output for all of 1987 decreased two percent from the previous year, averaging 28 600 cubic metres per day.

Heavy crude oil production, including blended bitumen, set records, increasing to 73 100 cubic metres per day from 64 200 cubic metres per day in 1986.

Total crude oil and equivalent production of 259 800 cubic metres per day was 4.3 percent above the 1986 average level of 249 000 cubic metres per day.

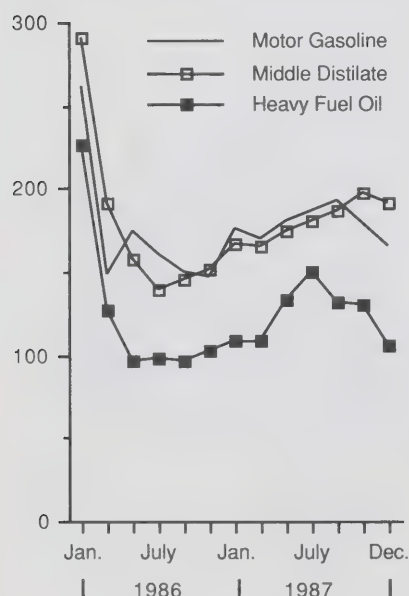
Crude Oil Exports

During 1987, crude oil exports, including synthetic crude oil and pentanes plus, averaged 99 600 cubic metres per day. This was made up of 55 400 cubic metres per day of heavy crude oil and 44 200 cubic metres per day of light crude oil. In both the light and heavy categories, there was an increase in exports of about seven percent. The estimated value of crude oil exports in 1987 is \$4.9 billion compared to \$3.8 billion in 1986. The increase of 30 percent in the value of exports resulted from increases in both export volumes and prices, reflecting the rise in the average world price of oil in 1987. The export prices of Canadian light and heavy crude oils in 1986 and 1987 are shown in Figure 4.

As in previous years, the primary market for Canadian crude oil exports was the mid-western United States. However, although relatively small, crude oil exports to overseas destinations increased in 1987 to 1 000 cubic metres per day.

Figure 5

Main Petroleum Products Average F.O.B. Export Price (\$Cdn. per Cubic Metre)



The largest export buyers of Canadian light crude oil in 1987 were Clark Oil, Conoco, Sun Refining and United Refining; of Canadian heavy crude oil, the largest foreign customers were Koch Refining, Union Oil, Mobil Oil and Amoco. (Please refer to *Oil Appendix 5* for more details.)

Main Petroleum Product Exports

During 1987 main petroleum product exports averaged 22 000 cubic metres per day, an increase of 15 percent over the previous year. The value of exports, excluding products produced under processing agreements, rose at a higher rate, by 30 percent to \$0.9 billion, reflecting the recovery in world oil prices from the low levels of 1986. Figure 5 shows the increases which occurred in the export prices of main petroleum products since the middle of 1986.

The United States continued to be our largest buyer of petroleum products, accounting for some 96 percent of total exports. However, the largest increase in exports in 1987 occurred in exports from British Columbia, which were destined mainly to the Far East. Table 2 provides petroleum product export volumes by region. Exporters across Canada were able to make sales of

petroleum products into the export market, continuing the pattern of the previous year. Exports from the Newfoundland Energy Limited Come-By-Chance refinery were small, because the refinery reopened late in the year.

Table 2

Main Petroleum Product Exports
(Thousands of Cubic Metres)

	Motor Gasoline	Middle Distillate	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total^a
Atlantic	902	1 357	201	274	175	2 909
Quebec	44	475	—	343	34	896
Ontario	213	1 050	147	674	15	2 099
Prairies	214	363	150	79	—	806
British Columbia	598	324	441	17	11	1 391
Total	1 971	3 569	939	1 387	235	8 101
Average Export Price (\$/m ³)	180	180	172	127	153	

a - excludes propane, butanes, lubricants, greases, and asphalt.

Oil Pipeline Capacity

The most important factor to affect oil pipeline capacity in 1987 was the completion of an expansion program by Interprovincial. Interprovincial, which transports oil east from Alberta and Saskatchewan, completed its Phase II and Phase III expansions in February and October 1987. These projects had been approved by the Board following public hearings in 1985 and 1986, respectively. Prior to the expansion, more oil was tendered for shipment on the pipeline than could be accommodated and the company was forced to apportion available space among shippers. Since the expansion and the reactivation of an existing line, there has been enough capacity to move essentially all available volumes to market.

During 1987, the Wascana pipeline was reactivated. This pipeline is used to ship Saskatchewan heavy crude oil south from Regina to the United States.

Natural Gas

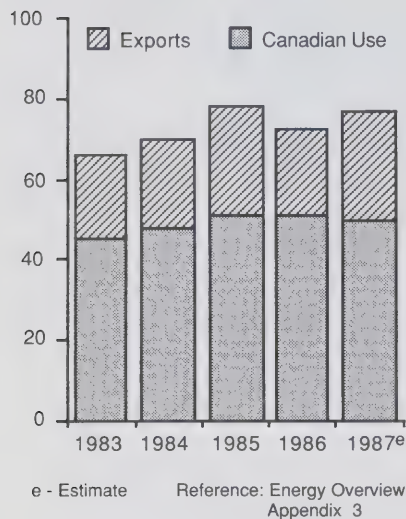
Supply and Domestic Demand

Natural gas markets continued to adjust to a less regulated environment in 1987. Price negotiations between natural gas producers and consumers occurred throughout the year. Direct natural

Figure 6

Natural Gas

Supply and Disposition
(Billions of Cubic Metres)



gas sales increased substantially, resulting in gas-to-gas competition in some markets.

In 1987, net sales of natural gas in Canada decreased by five per cent from 1986 to 45.5 billion cubic metres.

Residential and commercial use of natural gas for heating declined because of relatively warm weather. Industrial use declined slightly as a result of competition from other fuels and feedstocks.

Production of natural gas increased in 1987 to 77.9 billion cubic metres from 72.1 billion cubic metres in 1986 as a result of a large increase in export sales.

Exports

The Board approved 109 short-term natural gas export orders during 1987.

The volume of natural gas exports increased during 1987 by seven billion cubic metres, or 33 percent, from 21 billion cubic metres in 1986 to 28 billion cubic metres. However, natural gas prices fell, reflecting gas-to-gas competition in a shrinking American natural gas market. Canadian natural gas export prices averaged \$2.43 per gigajoule in 1987 compared to \$3.20 per gigajoule during 1986, a decline of 24 percent.

The net result was an increase in total gas export revenues to \$2.6 billion compared to \$2.5 billion in 1986.

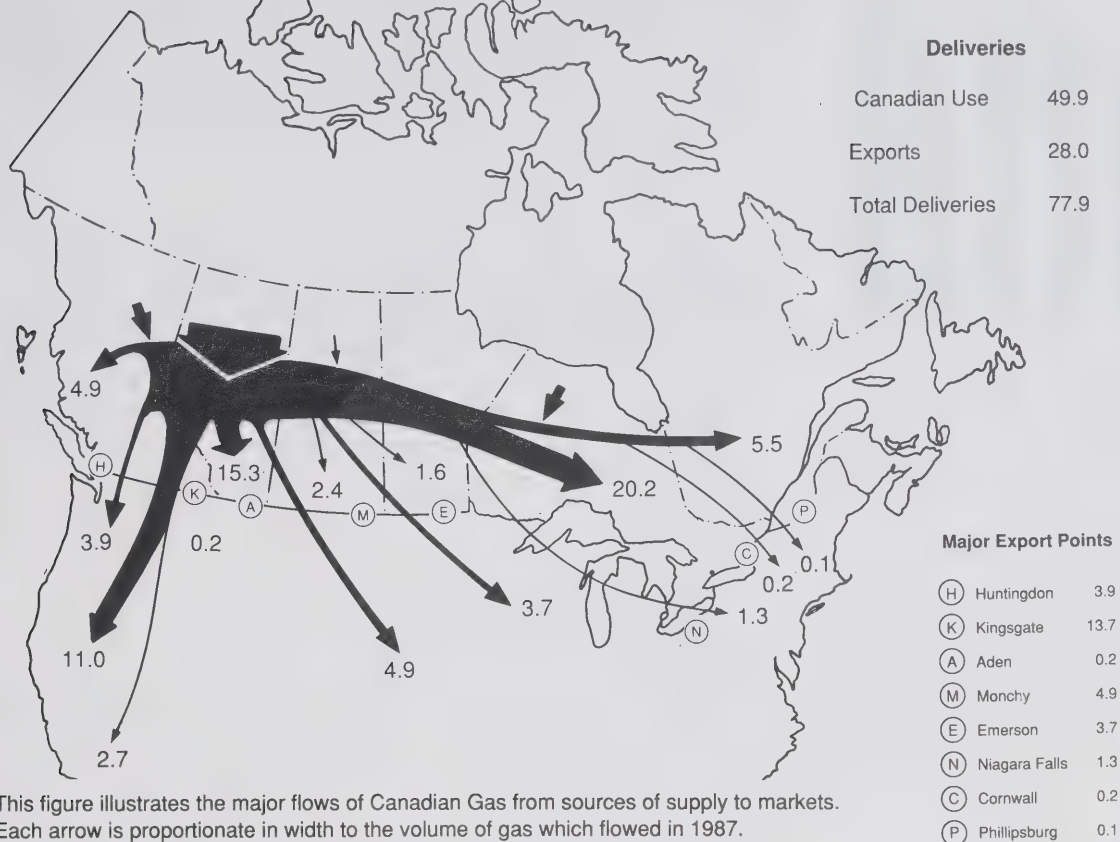
Exports to California, which accounted for 50 percent of Canada's 1987 gas export sales, were responsible for 80 percent of the increase in volume. The remainder of the increase is attributable to higher sales into the American spot market. As a result, the Canadian share of the American gas market increased to approximately 5.8 percent, up from 4.6 percent in the previous year.

Access to American transportation systems remains a problem despite continuing efforts by the United States Federal Energy Regulatory Commission (FERC) to induce interstate pipeline companies to become "open access" transporters of gas. During 1987 only one American pipeline company directly accessible to Canadian gas accepted open access status. During the year, lack of access to American pipelines limited exports under short-term orders. However, under contractual provisions in a number of long-term agreements for selling gas under licence, export sales into the spot market by licence-holders remained strong and accounted for about one-quarter of total export sales.

At year-end 1987, the outlook for 1988 export sales was optimistic. If open access to interstate pipelines becomes a reality early in the year, export volumes should increase again. Gas export prices are expected to stabilize.

Figure 7 Natural Gas Disposition 1987

(Billions of Cubic Metres)



This figure illustrates the major flows of Canadian Gas from sources of supply to markets. Each arrow is proportionate in width to the volume of gas which flowed in 1987. The numbers in this table have been rounded.

Figure 18 presents a map which indicates the location of natural gas pipelines regulated by the Board.

Natural Gas Liquids

Total net Canadian production of propane and butanes in 1987 was 7.9 and 5.1 million cubic metres respectively, about 8.5 and 19 percent above 1986 levels. Ethane production was 9.4 million cubic metres, an increase of 16 percent above 1986 levels. Canadian domestic requirements for propane and butanes grew substantially in 1987. Export quantities of propane and butanes amounted to 2.6 and 2.8 million cubic metres respectively. This was an increase of 16.1 percent over 1986 levels. There were no ethane exports in 1987.

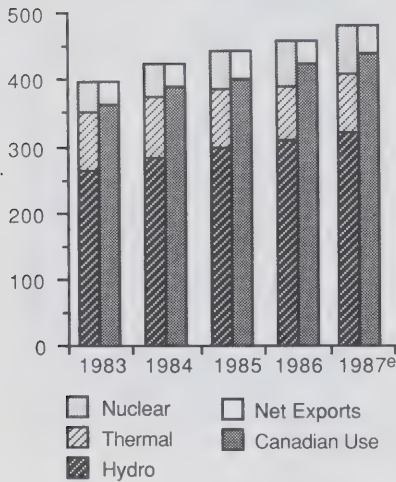
Electricity

Generating Capacity

In 1987, Canada's total net generating capacity was approximately 95 000 megawatts, an increase of about 3 500 megawatts, or four percent, over 1986. The increased generating capacity was primarily a result of new nuclear units coming into service in Ontario.

Figure 8

Electricity Generation and Disposition (Terawatt Hours)



e - Estimate

Reference: Energy Overview
Appendix 4

Generation and Consumption

Total generation of electricity in 1987 was an estimated 483 000 gigawatt hours, up six percent over 1986. Approximately 65 percent of the total was supplied from hydroelectric generation, 20 percent from conventional thermal generation and 15 percent from nuclear generation. Total Canadian consumption in 1987 is estimated to have been 438 000 gigawatt hours, an increase of four percent over 1986. Figure 8 illustrates the generation and disposition of Canadian electricity for the past five years.

Export Sales

1987 was a record year for electricity export volumes. Sales amounted to 45 359 gigawatt hours, an increase of 29 percent over 1986, surpassing the previous record of 41 500 gigawatt hours set in 1985. Revenue of \$1.2 billion from 1987 electricity exports represented an increase of 12 percent over 1986, but it fell short of the record of \$1.4 billion set in 1985. Export revenue in 1987 did

Figure 9

International and Interprovincial Transfers of Electricity

(Gigawatt Hours)

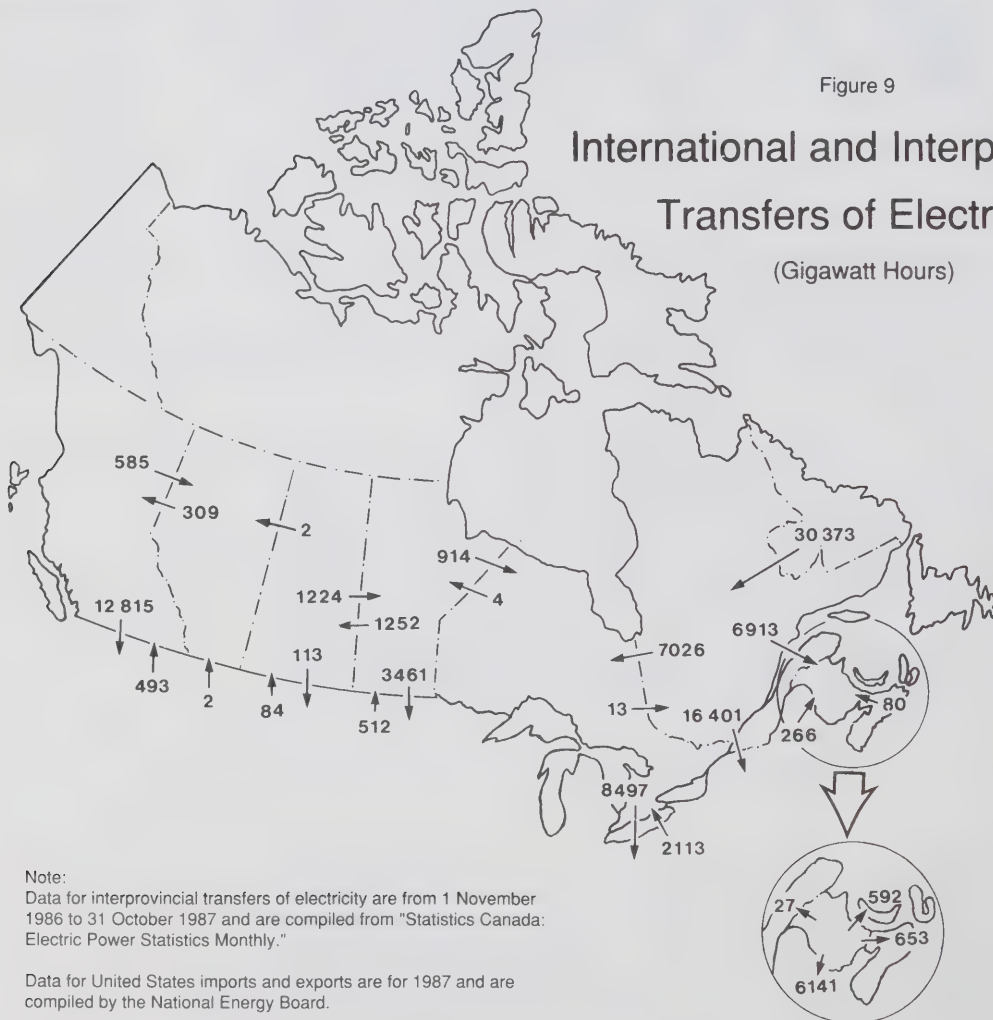


Table 3

Canada - United States Electricity Exports
By Importing Region/State and Exporting Province
 (Gigawatt hours)

To Region/State	From Province	Sales¹
Maine	New Brunswick	4 097
Massachusetts	New Brunswick	1 813
Vermont	Quebec	1 914
	Ontario	<u>264</u>
	Total	2 178
New England ²	Quebec	4 773
New York	Quebec	8 342
	Ontario	<u>7 490</u>
	Total	15 832
Michigan	Ontario	808
Minnesota	Manitoba	2 564
North Dakota	Manitoba	753
	Saskatchewan	<u>55</u>
	Total	808
Washington	British Columbia	1 682
Oregon	British Columbia	4 657
California	British Columbia	6 021
Other ³	British Columbia	<u>126</u>
TOTAL		45 359

1 Excludes exchanges.

2 Exports are made to the New England Power Pool - the states receiving the energy cannot be accurately determined.

3 Includes Idaho, Montana, Nevada and Utah.

not increase as much as the volume, because electricity export prices, which are based in part on the avoided cost of the displaced electricity generated from oil, were still being affected by low world oil prices.

Almost all major exporting utilities increased their exports over last year's quantities. The exception was Manitoba Hydro, whose export quantities fell 50 percent from the previous year and which recorded its lowest level since 1980. This decrease resulted from a low spring run-off and a dry summer.

There were two main reasons for Canada's record electricity export volumes in 1987. The first was Hydro-Québec's access to a new

market, the New England Power Pool. Sales to this market, which had begun in late 1986, accounted for 85 percent of Hydro-Québec's increase in export volume in 1987. Hydro-Québec's export quantities and revenues were up 29 percent and 18 percent respectively over 1986. Once again it was the largest Canadian exporter of electricity.

The second reason for the large exports was the record sales made by B.C. Hydro, which totalled 11 637 gigawatt hours. Although this surpassed its exports in 1985, the previous record export year, the associated revenue of \$192 million fell well short of the \$281 million it received for the electricity exported in that year.

Figure 9 shows exports and imports in 1987 as well as interprovincial transfers for the 12 months ending October 1987. Table 3 shows, by province, the destination of all exports. The largest market in 1987 was New York State, which accounted for about 35 percent of all Canadian electricity exports.

Oil and Gas Activity and Reserves

Exploration and Drilling Activity

Exploration and drilling activity in the Canadian oil and gas industry increased during 1987 over 1986. This resulted from the upturn in oil prices and the anticipation of a higher and more stable cashflow. While this increase was evident in the conventional areas of Canada, activity on Canada Lands remained at or below the 1986 levels.

All of the following major indicators of the health of the industry improved during the year: land sales and the numbers of geophysical crews operating, rigs drilling and wells completed.

Land sale results improved over 1986 both in terms of the amount of land acquired and the price paid. However, the levels reached in 1987 were still below those attained in 1985. During 1987, the industry acquired the rights to 2.9 million hectares, compared to 2.3 million hectares in 1986 and 3.9 million hectares in 1985 (Please refer to Figure 10). The average price per hectare in 1987 was \$269, compared to \$130 and \$268 per hectare in 1986 and 1985 respectively (Please refer to Figure 11).

On an annual basis, geophysical activity in 1987 was only slightly above that in 1986. This was because the first quarter of 1986 experienced an unusually high level of activity prior to the exploration cutbacks caused by the collapse in world oil prices. The average number of crews operating per month for the period January 1985 to December 1987 is shown in Figure 12.

Drilling activity in Canada was marginally higher in 1987 compared with 1986. While the number of well completions were essentially the same in both years, there was an increase in the number of drilling rigs operating during the second and third

Figure 10

Land Sales
Hectares Acquired by Quarter
(Millions)

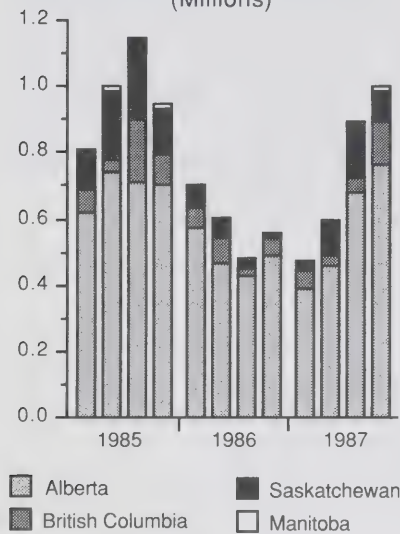
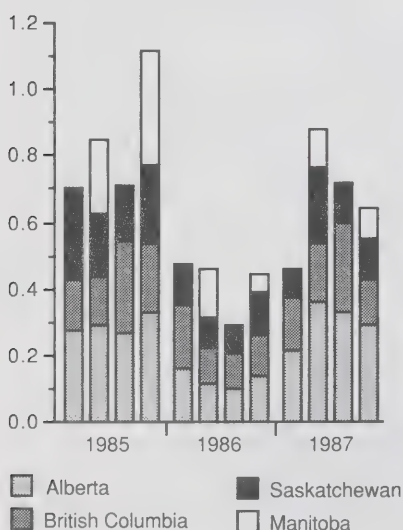


Figure 11

Land Sales
\$000 per Hectare by Quarter



quarters of 1987. However, during the fourth quarter of 1987, drilling rig activity declined, primarily as a result of the termination of the Alberta five-year royalty holiday on successful exploratory oil wells.

The exploration highlight of 1987 was the announcement of Shell Canada's natural gas and condensate discovery at Caroline, Alberta, 120 kilometres northwest of Calgary. This discovery is important not only because of its size, but also because it indicates a new productive trend, along which additional discoveries can be anticipated.

Oil and Gas Reserves

The Board's estimate of remaining established reserves of conventional crude oil as of 31 December 1986 is 730.8 million cubic metres, 6.6 million cubic metres less than the estimate for year-end 1985.

Initial (before production) established reserves of conventional crude oil increased 62.4 million cubic metres through discoveries, extensions to reserves, and revisions to reserves estimates. Increases were recorded in all four western provinces.

The Board's estimate of remaining established reserves of marketable natural gas in the conventional producing areas as of 31 December 1986 is 75.3 exajoules, two exajoules lower than the estimate for year-end 1985.

Initial established reserves of natural gas increased 1.3 exajoules, reflecting increases in all conventional areas except the southern Yukon and Northwest Territories.

Table 4

Estimated Established Reserves of Conventional Crude Oil at 31 December 1986 (Millions of Cubic Metres)

	Initial	Remaining
British Columbia	84.5	19.7
Alberta	2086.5	559.2
Saskatchewan	447.4	113.0
Manitoba	34.8	9.8
Southern Yukon and Northwest Territories	35.2	28.1
Ontario and Other Eastern Areas	10.3	0.9
Total for Canada	2698.6	730.8

Figure 12

Geophysical Activity Western Canada

(Active Crews by Month)

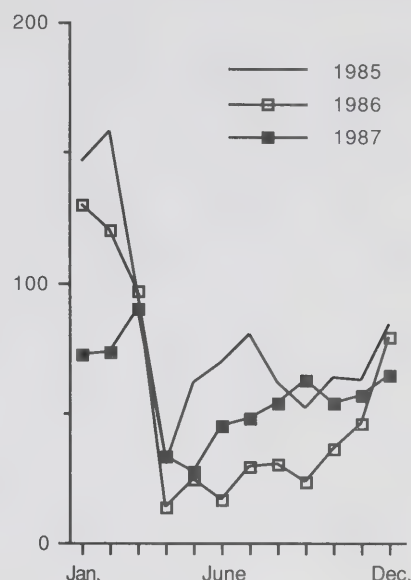


Figure 13

Well Completions Canada

(000)

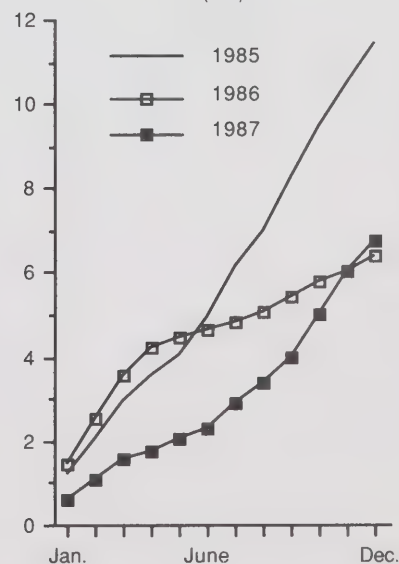


Figure 14

Canadian Rig Activity

(Number of Rigs Drilling per Week)

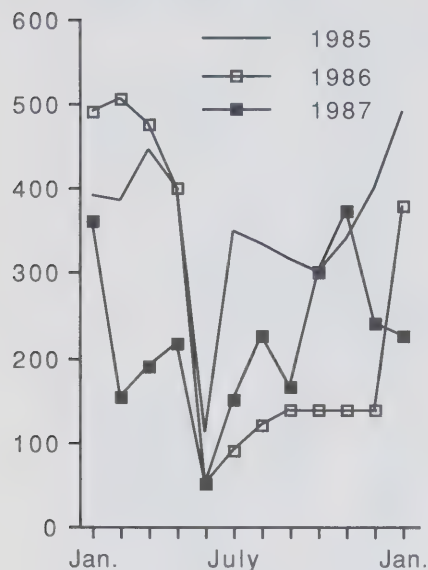


Table 5

**Estimated Established Reserves
of Marketable Natural Gas
at 31 December 1986**

(Exajoules)

	Initial	Remaining
British Columbia	16.0	8.8
Alberta	114.8	63.9
Saskatchewan	3.2	1.9
Southern Yukon and Northwest Territories	0.5	0.3
Ontario and Other		
Eastern Areas	1.5	0.4
Total Conventional Areas	136.0	75.3
Mackenzie Delta	5.6	5.6
Arctic Islands	12.0	12.0
Total for Canada	153.6	92.9

Figure 15

Crude Oil

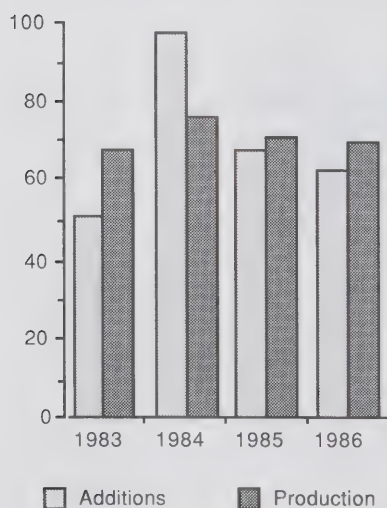
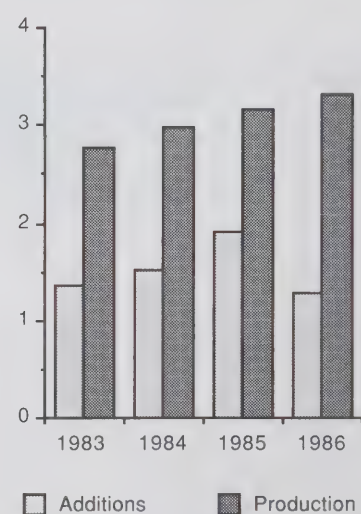
Reserves Additions vs. Production
(Millions of Cubic Metres)

Figure 16

Natural Gas

Reserves Additions vs. Production
(Exajoules)

Board Activities

Hearings and Inquiries

During 1987, the Board conducted all or part of 15 hearings and inquiries in locations from Vancouver, British Columbia to Fredericton, New Brunswick, for a total of 172 hearing days.

This section summarizes the major decisions issued following public hearings and provides information on other applications before the Board during 1987.

Natural Gas Exports

Surplus Determination Procedures

One of the key responsibilities of the National Energy Board is to ensure that natural gas proposed to be exported is surplus to reasonably foreseeable Canadian requirements. The Board has discharged that responsibility by various means over the years.

In a hearing held in 1985, the Board reviewed the procedures it uses to determine natural gas surplus. In its report dated April 1986, the Board announced new procedures based on the ratio of reserves to production (the R/P Ratio Procedure).

By letter dated 29 October 1986, the Minister of Energy, Mines and Resources sought the Board's advice on the implications of changing conditions in natural gas markets "and the action the Board is prepared to initiate in respect of its natural gas surplus determination procedures to take account of a rapidly evolving market environment".

On 4 November 1986 the Chairman replied that the Board was prepared to undertake a comprehensive review.

This review was conducted by the Board as a whole. Input from interested parties was by written submission (some 50 parties provided submissions) and in the form of an oral hearing held before one member over 12 days in April and May 1987 in Ottawa, Calgary and Toronto.

The review centred upon two main questions:

- whether the R/P Ratio Procedure continued to be appropriate in the light of recent changes in the Canadian natural gas market, and
- what alternative procedures should the Board consider.

In September 1987, the Board issued its Reasons for Decision adopting a new procedure, the Market-Based Procedure, for determining the surplus of natural gas available for export. This replaced the R/P Ratio Procedure.

Under the new procedure, the Board decided it would act in two ways to ensure that natural gas to be licensed for export is surplus to reasonably foreseeable Canadian needs: one will be in the context of public hearings to consider applications for licences to export natural gas; the other will be by monitoring Canadian energy markets on an ongoing basis.

The public hearing portion of the Market-Based Procedure includes the following three components:

1) *Complaints Procedure* – In the public hearing process, the Board will consider complaints that Canadian users cannot obtain additional supplies of gas under contract on terms and conditions, including price, similar to those in the export proposal. If the Board finds merit in a complaint that Canadians have not been able to contract for gas on an equal basis, it may deny the application or defer issuing a final decision on it until an opportunity has been given for the situation to be rectified.

2) *Export Impact Assessment* – The Board will require applicants for export licences to file an impact assessment which will allow the Board to determine whether a proposed export is likely to cause Canadians difficulty in meeting their energy requirements at fair market prices.

3) *Public Interest Determination* – The Board will continue, as required by Section 83 of the *National Energy Board Act*, to have regard to all other factors it considers relevant in determining whether proposed export licences are in the national public interest.

As part of the monitoring function of the new procedure, the Board will continue to publish every two years its staff assessment, *Canadian Energy Supply and Demand*. The next edition of this report is expected to be published in late 1988. This assessment considers, among other things, the evolving shares of the energy market served by various energy forms - electricity, oil, natural gas, petroleum products, coal, and renewables - over a projection period of some 20 years. Also, on an ongoing basis, the Board will publish natural gas market assessments, analyzing natural gas supply, demand and prices.

Alberta Northeast Gas Export Project

In November 1986, Alberta Northeast Gas Ltd., in separate joint applications with each of TransCanada, ProGas, ATCOR, and AEC, asked the Board to consolidate and extend three existing natural gas export licences and to issue new licences for exports to the northeastern United States.

The Year at a Glance

Oil

- issued some 110 orders for the short-term export of oil
- oil pipeline capacity increased as Interprovincial completed its Board-approved expansion program
- in response to an application by Trans Mountain, designated methyl tertiary butyl ether (MTBE) and methanol as oil products, thereby permitting their transport by pipeline

Natural Gas

- approved 109 orders for short-term exports and imports and 46 for the transportation of natural gas in interprovincial trade
- adopted the "Market-Based Procedure" to ensure that proposed exports are surplus to reasonably foreseeable Canadian requirements, replacing the previous Reserves/Production Ratio Procedure
- granted four new licences to proponents of the Alberta Northeast Project, authorizing exports of up to 61 billion cubic metres
- issued a new licence to ProGas to export up to 517 million cubic metres per year for a 20-year period
- made a submission to the United States Federal Energy Regulatory Commission, stating the Board's concerns about FERC Opinion No. 256, which disallowed the recovery of certain Canadian pipeline transportation costs as negotiated in gas export contracts

Electricity

- inquired, at the Minister's request, into the federal regulation of electricity exports; the Board's response comprised the report of the three-member inquiry panel, outlining options, which the Minister made public, and a report conveying the full Board's conclusions and recommendations
- denied, on the basis of insufficient evidence, an application by Hydro-Québec to export 70 terawatt hours of energy; revised application considered in December
- approved an application by Manitoba Hydro to export 200 megawatts of firm power to Northern States Power Company

- increased the limits of orders for the export of electricity from 50 to 60 megawatts and from 250 to 400 gigawatt hours and for interruptible exports and exchanges from 250 to 1000 gigawatt hours

Canadian Energy: Supply and Demand

- initiated a study on the supply and demand of Canadian energy for the period 1987 to 2005; this study, to be published in late 1988, will update the staff's 1986 projections

Pipelines

- began hearings into a proposal by TransCanada to expand its system to meet the needs of existing domestic and export gas markets and to deliver new licensed exports to the northeastern United States
- inquired into an accident on the Sun pipeline near Sarnia, Ontario
- continued the review of recommendation 5.9 and consideration of other recommendations contained in the Board's 1986 report following an investigation of a fatal accident in 1985 on Interprovincial's pipeline near Camrose, Alberta
- continued its review of the regulations governing the crossing of pipelines by third parties; the revised regulations are expected to be issued in 1988
- signed a memorandum of understanding with Labour Canada, whereby Board inspectors were appointed safety officers by the Minister of Labour to administer Part IV of the Canada Labour Code within the pipeline industry under the Board's jurisdiction
- recorded no fatalities or serious injuries resulting from accidents on pipeline rights-of-way during 1987; a total of 38 incidents were reported during the year

Toll Regulation

- approved new tolls for Westcoast effective 1 January 1987 and 1 January 1988
- decided on tolls to be charged by TransCanada, effective 1 July 1987, that would remain essentially unchanged from the current tolls
- issued a decision on new tolls to be charged by Interprovincial effective

1 January 1987, resulting in an overall average increase in light crude oil tolls of about 20 percent

- authorized new tolls, effective 1 September 1987, that Trans-Northern may charge for the transportation of refined petroleum products
- established a new monthly toll that TQM may charge for the transportation of natural gas in Quebec
- decided to regulate the tolls of Alberta Natural Gas and IPL (NW) on a complaint basis

Legal Actions

- Federal Court of Appeal determined that Board did not have jurisdiction over a six-kilometre pipeline proposed to be built by Cyanamid in southwestern Ontario
- Federal Court of Appeal upheld the Board's decision that it has jurisdiction over certain ethane storage caverns in Windsor, Ontario
- Federal Court granted Northridge Petroleum Marketing, Inc. and ENRON Canada Ltd. leave to appeal the Board's decision on their complaints about tolls charged by TransCanada for gas sold under TransCanada's competitive marketing program agreements
- Federal Court allowed an appeal by the Township of Flamborough and the Regional Municipality of Hamilton-Wentworth relating to the imposition of terms and conditions in the Board's order that authorized Interprovincial to construct certain propane terminal facilities in the Flamborough, Ontario area; on Interprovincial's advice that it did not intend to proceed with the project, the Board revoked the order that authorized the facilities.

Regulatory Process

- initiated a comprehensive analysis of methods to improve the Board's hearings and implemented a number of initiatives; consultation with interested parties on other suggestions will continue in 1988

Work Force Adjustment

- reduced its staff from 433 to 358 persons

In their applications, the companies requested Board approval to export some 61 billion cubic metres of natural gas to 19 gas distribution companies located in the New England, New York and New Jersey market areas. Exports would be for a 15-year period, starting 1 November 1988. Thirty-one billion cubic metres of the total volume had already been authorized for export under Licences GL-84, GL-85 and GL-88 held by TransCanada.

The Board held a public hearing in February 1987 and released its Reasons for Decision in April 1987. The Board granted four new licences, one each to TransCanada, ProGas, ATCOR, and AEC, with each licence being held jointly by Alberta Northeast Gas Ltd. These licences authorized the export at Niagara Falls and Iroquois, Ontario of up to 61 billion cubic metres of natural gas to the north-eastern United States. In addition, two existing licences held by TransCanada were revoked and one amended.

ProGas Limited - Licence

In September 1986, ProGas requested a new licence to export natural gas to Ocean State Power over a 20-year period at Niagara Falls, Ontario. The gas would be used to fuel a new combined-cycle electrical generating plant that Ocean State is proposing to build at Burrillville, Rhode Island. The quantity to be exported would be up to 517 million cubic metres per year commencing May 1989.

The Board held a hearing on the application in Calgary in January and released its Reasons for Decision in February 1987 approving the requested licence.

Ocelot Gas Marketing Inc. - Licence

By application dated 30 October 1987, Ocelot Gas Marketing Inc. requested a licence for a 15-year term to export natural gas to its wholly owned subsidiary, Ocelot Gas Marketing (U.S.) Inc. The quantity to be exported would be 1.4 million cubic metres per day (50 million cubic feet per day), commencing 1 December 1987, or as soon as approval had been obtained for transportation of the gas via Foothills Pipe Lines (Yukon) Ltd. and Northern Border Pipeline Company.

Subject to the filing of further information by Ocelot, the Board expects to hear the application in 1988.

Pan-Alberta Gas Ltd. - Extension of Licence

By application dated 21 May 1987, Pan-Alberta applied for an extension of Licence GL-96 from 31 October 1996 to 31 October 2012 and an increase of 45.6 billion cubic metres in the total quantity authorized under the term of the licence.

In December 1987, the Company filed a revised application.

A public hearing is expected to be held early in 1988.

Alberta and Southern Gas Co. Ltd.

In November 1987, the Board received an application from Alberta and Southern to vary gas export Licence GL-99 and to authorize an increase of 169.3 billion cubic metres in the total quantity of gas to be exported. This application supersedes an application made by the company in 1985.

The application as filed is incomplete. The company expects to file additional gas reserve information, market information, and an export impact assessment in early 1988.

Highlights of the Pipeline Companies Under National Energy Board Jurisdiction

	1987 Rate Base ¹ (\$000,000)	1987 Revenue Requirement (\$000,000)	Length (Including Loops) (km)	1987 Actual Throughput
GROUP 1²				
Gas				(10 ⁶ m ³)
Alberta Natural Gas Company Ltd	17	25	172	13 717
Foothills Pipe Lines (Yukon) Ltd.	735	182	849	7 494
Trans Québec & Maritimes Pipeline Inc.	397	77	341	2 613
TransCanada PipeLines Limited	2 558	1 220	10 599	32 740
Westcoast Transmission Company Limited	789	258	4 443	8 900
Oil				(10 ³ m ³)
Cochin Pipe Lines Ltd.	59	25	1 125	3 151
Interprovincial Pipe Line Limited	563	237	6 652	77 692
Interprovincial Pipe Line (NW) Ltd.	331	80	868	1 562
Trans Mountain Pipe Line Company Ltd.	68	44	1 328	26 225
Trans-Northern Pipelines Inc.	45	26	847	8 563
GROUP 2				
Total	96	60	3 111	N/A

¹ Net plant or equivalent, including working capital.

² Group 1 consists of the ten major pipeline companies. The remaining companies have been designated as Group 2 companies.

Source: Preliminary estimates obtained from the pipeline companies.

Electrical Matters

Regulation of Electricity Exports

In November 1986, the Board commenced an inquiry into the federal regulation of electricity exports.

The inquiry resulted in part from a request by the Minister of Energy, Mines and Resources that the Board report to him on the changes that might be made to reduce and simplify the regulation of electricity exports and international power lines.

As part of the inquiry, a public hearing was held in November and December 1986 in Ottawa, Fredericton and Vancouver. Fifty-two parties took part in the hearing.

The Board examined a number of issues:

- the rationale for regulation, i.e., divergences between the public and private interests resulting from the presence of monopoly or market power, the imposition of external or indirect costs, and the existence of costs to be borne by future generations;
- the existence of any overlap of federal and provincial regulation and ways to reduce it;
- the method used to determine whether electricity to be exported is surplus to Canadian requirements;
- the appropriateness of the Board's current price guidelines;
- the terms of licences, now limited to twenty-five years;
- the reduction, where possible, of the information that must be supplied by applicants for licences and certificates;
- whether exports of electricity generated from imported energy sources should be exempt from regulation by the Board;
- transmission access for Canadian exporters that do not have direct access to potential American purchasers;
- the treatment of surplus, export price and other public interest considerations related to long-term export proposals which may involve prebuilt or dedicated facilities; and
- The criteria applicable to certification of international power lines.

The Board's response to the Minister was provided on 9 July 1987. It comprised a report of the three-member inquiry panel, outlining options, which was made public by the Minister on 16 July 1987, and a report of the full Board conveying its conclusions and recommendations.

The Manitoba Hydro-Electric Board - Export Licence

In June 1987 the Board held a public hearing in Winnipeg, Manitoba on an application dated 20 January 1987 by Manitoba Hydro for a licence to export firm power and energy to Northern States Power Company of Minneapolis, Minnesota.

In September 1987, the Board issued its Reasons for Decision approving a licence authorizing the export of up to 200 megawatts of firm power with a maximum of 883 gigawatt hours of energy annually during the summer months from 1993 to 1996 inclusive.

Hydro-Québec - Export to New England Utilities

In December 1985, the Board received an application from Hydro-Québec for a licence to export 70 terawatt hours of electrical energy over a 10-year period commencing in 1990 to New England Utilities. The delivery period could be extended for a further four years to permit delivery of any remaining energy not delivered before 31 August 2000.

The public hearing into the application was held in Montreal for eight days in March 1987 and in Ottawa for four days during April.

In June, the Board issued its Reasons for Decision denying the application. The Board found that the evidence presented by Hydro-Québec was insufficient to demonstrate

- that the energy proposed to be exported was surplus to reasonably foreseeable Canadian requirements for use in Canada; and
- that the export price was not less than the price to Canadians for equivalent service in related areas.

A utility requesting an export licence is required, under the *National Energy Board Act* and regulations, to furnish this information.

In complying with this requirement, it has been normal practice for utilities proposing to export electricity to first offer this electricity to neighbouring provinces at a price that is no higher than the export price for comparable service. Refusals of such offers have been taken by the Board as an indication that Canadian utilities do not require the electricity proposed to be exported.

Hydro-Québec failed to make such offers to its neighbouring utilities in Ontario, New Brunswick and Newfoundland, and did not provide any other evidence sufficient to satisfy the Board that the energy proposed to be exported was surplus to Canadian needs and that the price was just and reasonable in relation to the public interest.

In August, Hydro-Québec filed a new application for a licence to export 70 terawatt hours of firm energy to New England Utilities for a period of 10 to 14 years starting in 1990. In its application, Hydro-Québec stated that, in compliance with the Board's earlier

Expeditious Regulation

During 1987, the Board continued to consider the applications it received with all due expedition. Most short-term gas export applications were considered within three days of receipt; applications requiring a public hearing, of course, required a longer period for their consideration: gas licence applications were processed in about five months, pipeline facilities applications required an average of six months, and pipeline toll applications some eight months.

decision, it had offered the energy proposed to be exported to directly interconnected Canadian utilities.

A public hearing into the application was held during December 1987. A decision on the application is expected early in 1988.

Maine and New Brunswick Electrical Power Company, Limited - Export Licence

By application dated 17 September 1987, Maine and New Brunswick requested a licence to export 37 megawatts of firm power and 200 gigawatt hours of energy in any consecutive 12-month period over a 20-year period to its parent company, Maine Public Service Company of Presque Isle, Maine.

The Board intends to hold a public hearing on this application in the spring of 1988.

Hydro-Québec - Exports to Vermont Joint Owners

By application dated 29 June 1987, Hydro-Québec requested a licence to export up to 50 megawatts of firm power and 438 gigawatt hours of firm energy to Vermont Joint Owners for the period 1 March 1988 to 31 October 1990.

Following the filing of additional information, the Board intends to hold a public hearing on this application in January 1988.

Pipeline Facilities

Cyanamid Canada Pipeline Inc. - Facilities

In August and September 1986, the Board held a public hearing on two applications by Cyanamid Canada Pipeline Inc. (Cyanamid Pipeline), a wholly owned subsidiary of Cyanamid Canada Inc. (Cyanamid). Cyanamid Pipeline applied pursuant to section 49 of the *National Energy Board Act* for authorization to construct a six-kilometre pipeline from the TransCanada pipeline at Black Horse Station to the Cyanamid plant near Welland, Ontario. This facility would effectively bypass the facilities which are owned and operated by The Consumers' Gas Company Ltd. currently servicing the Cyanamid plant. Cyanamid Pipeline also applied pursuant to subsection 59(3) of the *National Energy Board Act* for an order of the Board directing TransCanada to connect its pipeline to the proposed Cyanamid pipeline.

The two principal issues addressed during the hearing were the question of whether the Cyanamid pipeline was within the Board's jurisdiction and, if so, whether the bypass proposal had merit from a public interest perspective.

The Board issued its Reasons for Decision in January 1987. The Board approved the construction of the six-kilometre pipeline after having determined that the pipeline was under Board jurisdiction.

Several legal proceedings followed, in one of which the Federal Court of Appeal ruled that the Board did not have jurisdiction over the pipeline. For a description, please refer to *Legal Actions*.

***TransCanada PipeLines Limited -
1988 and 1989 Facilities and Toll Design***

In June 1987, TransCanada filed an application for authorization to expand its natural gas pipeline system in central Canada to meet the needs of existing domestic and export markets and to deliver new licensed exports to the United States.

In July the Board set the application down for hearing and indicated that it would also consider the toll design and the method of cost allocation for the new facilities.

In July, KannGaz sought a Board order directing TransCanada to construct the facilities required to transport export volumes of natural gas for KannGaz to export markets in the United States. In August 1987, the Board decided this application would be heard in conjunction with the TransCanada application.

The hearing began on 16 November 1987 in Ottawa and continued into 1988; a decision is expected by mid-year.

***Trans Mountain Pipe Line Company Ltd. -
Facilities and Toll Design***

In September 1987, Trans Mountain filed an application for approval of a major expansion of its pipeline system in British Columbia and Alberta, the related toll design for the expanded system, and refinements proposed to the existing toll design.

The company proposes to carry out its expansion in two stages. The Stage 1 facilities would allow Trans Mountain to transport increasing volumes of heavy crude oil, while it continues to meet its commitments to supply light crude oil to Vancouver refineries and refined products to Kamloops. The applied-for facilities include additional tankage at Edmonton and Burnaby, two new pump stations, and extensive additions and modifications to seven existing pump stations. Trans Mountain has projected that the facilities would be completed in late 1989, at a cost of some \$57 million.

The Stage 2 facilities would accommodate the possible shipment of other products, such as methanol or methyl tertiary butyl ether, used to increase the octane level in motor gasoline.¹ These facilities would be undertaken only when there is reasonable assurance that the shipments will materialize. The Stage 2 facilities, expected to cost some \$27 million, include the construction of three new pump stations and the reactivation of two idle loops, each 762 millimetres in diameter, totalling 82 kilometres in length.

The Board has set the application down for public hearing in Vancouver commencing in February 1988.

¹ See *Legislation and Regulations* for a description of the *Oil Product Designation*

Manitoba Oil and Gas Corporation - Transportation Services

In May, Manitoba Oil and Gas applied to the Board to direct TransCanada to transport natural gas purchased directly from gas brokers and producers in British Columbia, Alberta and Saskatchewan to Manitoba for a three-year period starting 1 November 1987 and to set the tolls to be charged for the transportation service. The gas volumes to be transported would in essence have displaced all volumes presently being purchased by each of the two distributors serving Manitoba, namely ICG Utilities (Manitoba) Ltd. and Greater Winnipeg Gas Company.

The Board held a public hearing in Winnipeg, Manitoba from 9 to 15 September 1987 and announced on 25 September that it had denied the application, with reasons for the decision to follow.

In October 1987, the Board issued its Reasons for Decision in which the Board stated its conclusion that the transportation arrangements proposed by Manitoba Oil and Gas constituted self-displacement of presently contracted firm supply and were not in the public interest.

Manitoba Oil and Gas later appealed the Board's decision to the Federal Court of Appeal. Further information is provided in *Legal Actions*.

Tolls and Tariffs

TransCanada PipeLines Limited - 1987 Tolls

In February 1986, TransCanada applied to the Board for new tolls effective 1 August 1986. The company refiled its application to comply with the Board's decision to set tolls based on a test year which conformed with the company's fiscal year.

The main features of TransCanada's application included an increase in its revenue requirement of some 10 percent over the 1986 authorized amount, an increase in the utility's deemed common equity ratio from 30 to 35 percent and a continuation of its 14.5 percent authorized rate of return on equity.

The public hearing into the new tolls began in September 1986 and concluded in February 1987. The hearing also dealt with the allocation for toll purposes of the approved cost of service of Trans Québec & Maritimes Pipeline Inc. (TQM), the implementation of an operating demand volume methodology and related matters flowing from the decision on the availability of services on the TransCanada pipeline¹, and various applications for final orders under subsection 59(2) of the *National Energy Board Act* requiring TransCanada to provide transportation services for certain direct purchases.

In June 1987, the Board released its Reasons for Decision. The Board decided that the tolls to be charged by TransCanada, effective 1 July 1987, would remain essentially unchanged from the

1 National Energy Board Reasons for Decision, May 1986.

current tolls as a result of a decision to hold the company's revenue requirement for 1987 at the 1986 level.

The Board denied the company's request to increase the equity component in its capital structure from 30 to 35 percent and authorized a rate of return on equity of 13.25 percent for 1987.

The Board decided that, effective 1 November 1987, TransCanada would offer two tiers of interruptible service, to be called IS-1 and IS-2. The IS-1 toll equalled the average firm toll at 80 percent load factor, and the IS-2 toll equalled the average firm toll at 90 percent load factor.

The Board did not accept proposals to treat the TQM revenue requirement differently from what has been the case historically and continued to regard the inclusion of TQM's costs in TransCanada's revenue requirement as being appropriate for toll purposes.

The Board found it appropriate to allow shippers the option of providing their own fuel as it would be consistent with the market-responsive pricing system called for by the *Agreement on Natural Gas Markets and Prices* of 31 October 1985. The Board directed TransCanada to file a tariff amendment which would allow shippers using the TransCanada system the option of supplying their own fuel gas by 1 November 1987, and required TransCanada to call for tenders on the supply of fuel gas not supplied by shippers.

The Board provided additional guidance on the operating demand methodology first announced in the Board's May 1986 TransCanada Reasons for Decision. The Board confirmed that there would be no automatic reversion of pipeline capacity to distributors upon termination of direct displacement sales. The Board decided that displacement volumes should be prorated among all long-term firm sales and transportation services being purchased by the distributor from TransCanada at the time the displacement occurs. The Board decided that it would consider the need for operating-demand relief for loads lost to interruptible service on a case-by-case basis.

In mid-July 1987, the Board received applications from the Independent Petroleum Association of Canada, Inland Cement Limited and Northridge Petroleum Marketing, Inc. requesting the Board to review portions of its May 1987 decision with respect to the level of interruptible tolls to be charged by TransCanada. In October, the Board denied the applications for review.

Also in July 1987, TransCanada requested a clarification of the Board's decision on prorata reductions to operating demand volumes. A review of the facts presented raised concerns as to the correctness of the Board's original decision. Accordingly, the Board decided to review its decision.

As a result of this review, the Board decided that the wording of its decision could result in the discriminatory treatment of different gas supplies, and in September issued an order altering the existing wording.

In October, TransCanada proposed that all shippers be required to provide their own fuel and requested the Board to review and rescind its decision on tendering for fuel. The Board rescinded its decision in November and decided to re-examine the need for tendering at TransCanada's next toll hearing. However, the Board did decide that shippers should have the option of providing their own fuel.

In November, PSR Gas Ventures Inc. applied for a review of the decision on the pro rata reduction methodology and for an order concerning PSR's operating demand volume under its long-term transportation agreement with TransCanada. As of year-end, the matter was still under consideration.

TransCanada PipeLines Limited - 1988 Tolls

In December 1987, TransCanada filed an application for 1988 tolls. The Board decided to make the existing tolls interim until it had sufficient time and an adequate opportunity to consider the company's case. A hearing on the application is expected in 1988.

Westcoast Transmission Company Limited - Tolls

-Export Interruptible Sales Toll

In December 1986, Westcoast applied for new tolls to be effective for 1987. In its application, Westcoast requested authorization to distribute to the export sales tollpayers the revenues received during 1986 and to be received in the 1987 test year from the application of the Export Interruptible Sales Toll (EIST). Based on conditions in the market of its export customer, Westcoast forecast that EIST revenues in 1987 would amount to \$26.5 million. Intervenor and the company requested an early decision respecting this issue.

A public hearing to deal with this issue was held in Vancouver in March 1987. In its April 1987 Reasons for Decision, the Board denied Westcoast's application to have the EIST suspended or rescinded and directed that the EIST revenues be credited to Westcoast's overall cost of service.

-Tolls for 1987 and 1988

In December 1986, Westcoast applied to the Board for new tolls to be effective for a test year commencing 1 January 1987. In the interest of conducting a more efficient proceeding by avoiding a separate public hearing for 1988 tolls, the Board subsequently requested Westcoast to consider amending its application to cover a period of two test years. Westcoast complied and filed a revised application for two test years, 1987 and 1988.

The main features of Westcoast's application included an increase in the rate of return on common equity from 13.75 to 14.5 percent, changes to the toll design for Zones 1, 2 and 3, and changes to the

general terms and conditions with respect to force majeure and other matters. Late in these proceedings, Westcoast applied for several additional changes to its toll design in conjunction with amendments to its contractual arrangements with its export customer, Northwest Pipeline Corporation. In its application, Westcoast requested a total revenue requirement of \$265.6 million for 1987 and \$267.9 million for 1988. This compares to the actual 1986 revenue requirement of \$257.9 million.

A public hearing lasting 45 days opened in Vancouver in May and concluded in Ottawa in September.

In December 1987, the Board released its Reasons for Decision. The Board approved Westcoast's request that the equity ratio remain at 35 percent but denied the requested increase for return on common equity, approving 13.5 percent for 1987 and 13.75 percent for 1988.

The Board approved a total revenue requirement of \$262.8 million for 1987 and \$275.5 million for 1988. In arriving at these amounts, the Board approved the company's 1987 salary and wage increases, but reduced the 1988 increases from 5.5 to 4.5 percent. The Board also directed Westcoast to determine pension expenses in accordance with the recommendation of the Canadian Institute of Chartered Accountants.

With regard to toll design matters, the Board found the contract demand (CD) volumes contained in Westcoast's gas sales and firm service contracts to be an appropriate basis for allocating fixed costs. Also, the Board accepted as reasonable the lower CD levels for the export market specified in the new Westcoast/Northwest Agreements in light of the circumstances of the export market. For the domestic market, the appropriate basis for allocation was found to be the CD levels in the relevant sales and service contracts.

The Board accepted as an interim measure, effective 1 November 1987, the toll design modifications underpinning the new Westcoast/Northwest Agreements. These modifications included Westcoast's proposal to credit interruptible revenues to the domestic or export market depending on the destination of the gas.

The Board found that the operating demand methodology first applied to TransCanada was appropriate for Westcoast and that the methodology should be applicable to the domestic and export markets. In addition, the Board accepted the modified toll design for each of Zones 1, 2 and 3, denied Westcoast's requested amendments to the force majeure and demand charge credit provisions, but amended the existing provisions to reduce the potential liability faced by Westcoast.

Interprovincial Pipe Line Limited - Tolls

In December 1986, the Board opened a public hearing on an application by Interprovincial for, among other things, new tolls to be

charged for the transportation of crude oil and other liquid hydrocarbons effective 1 January 1987. Later that month, the Board authorized interim tolls to be charged by Interprovincial effective 1 January 1987.

During the hearing, which concluded in March 1987, the Board's examination included the suitability of Interprovincial's proposed toll design methodology for propane service from Sarnia to Millgrove, Ontario; the appropriate toll design methodology related to the potential conversion of the Sarnia-to-Montreal portion of the Interprovincial line for the transportation of natural gas liquids; and, the matter of an appropriate capacity-related surcharge for medium and heavy crude oil.

In August 1987, the Board released its Reasons for Decision on the application. The decision resulted in an overall average increase of approximately 21 percent in 1987 test-year light crude oil tolls over the 1986 levels. Interprovincial had applied for an increase of 29 percent.

The Board authorized a return on common equity of 13.25 percent, 125 basis points below the applied-for rate of 14.5 percent, and reduced the deemed common equity ratio from 42.5 percent to 40 percent.

Interprovincial transports a number of different hydrocarbons, and its toll design is structured so that tolls for all hydrocarbons are established relative to the toll for light crude. This is achieved by the use of surcharges, or credits, to the base light crude toll.

With respect to the proposed propane project, Interprovincial applied to have the costs associated with the project allocated between the light-crude base and a propane surcharge in accordance with the methods currently employed by the company. The Board approved this proposal, but rejected a second aspect, Interprovincial's percentage surcharge proposal, which would have involved temporary cross-subsidization between propane shippers and other shippers on its system. The Board found that, if Interprovincial wished to implement toll levelling for the propane surcharge in order to make the service more attractive, the mechanism must not result in cross-subsidization among shippers.

Regarding the possible conversion of the Montreal Extension, Interprovincial proposed that the costs associated with the project be allocated between the light-crude base and a natural gas liquids surcharge in a manner similar to that employed for existing natural gas liquids and refined products service. The Board approved this aspect of the application, but rejected the company's proposal that those costs of the project associated with the natural gas liquids surcharge be added to the natural gas liquids revenue requirement for existing natural gas liquids service on the Older System. The Board found that there should be a separate natural gas liquids surcharge determination for the service on the Montreal Extension.

On the question of capacity-related surcharges, the Board found that flows of medium and heavy crudes resulted in reduced capacity of the Interprovincial system and directed that capacity surcharges of 5 and 15 percent be applied to medium and heavy crudes, respectively. Further, Interprovincial was directed to study methodologies which may be used to assess the level of capacity surcharges for all hydrocarbons transported on the system.

Trans-Northern Pipelines Inc. - Tolls

As a result of the declining trend in interest rates in the latter part of 1986, the Board became concerned about the continued appropriateness of the 15.75 percent return on common equity approved for Trans-Northern and decided to review the company's tolls.

In January 1987, the Board made the existing tolls interim and directed Trans-Northern to file certain cost of service, throughput, rate of return and income tax information. In response, the company filed a Class 3 toll adjustment application for new tolls. The application sought a 4.2 percent increase over the previously approved revenue requirement, and included a requested rate of return on common equity of 14.75 percent. The Board decided to examine the application by soliciting written submissions.

In August, the Board issued its Reasons for Decision authorizing new tolls effective 1 September 1987. The new tolls were on average 2.3 percent less than the existing tolls and reflected a rate of return on equity of 13.75 percent on an equity component in the capital structure which remained relatively unchanged at about 51 percent.

Trans Québec & Maritimes Pipeline Inc. - Tolls

After receiving TQM's application for 1987 tolls, the Board made TQM's existing toll interim. Then, with a view to improving the efficiency of the hearing process by eliminating the need for a separate proceeding for 1988 tolls, the Board suggested to TQM that it amend its initial application to include both 1987 and 1988 test years. TQM agreed and filed the necessary application in April 1987. To streamline the process further, it was decided to limit the oral hearing to the issues associated with rate of return, with all other issues being addressed by means of written submissions.

TQM applied for a 1987 toll that was 4.5 percent lower than the existing 1986 toll and a 1988 toll that was 4.9 percent lower than that requested for 1987. The Board approved tolls that were lower than the requested tolls by 2 percent and 2.7 percent, respectively.

The Board denied TQM's request for returns on equity of 14.75 percent for 1987 and 15 percent for 1988, allowing instead 13.5 percent and 13.75 percent, respectively, for the two years. The Board also denied the company's request to allow the equity portion of its capital structure to rise to 28 percent over the two test years from the 25 percent level at which it had remained since the beginning of operations in 1983.

In its decision, which was released in December 1987, the Board authorized a monthly toll of \$6.392 million for the 1987 test year and a monthly toll of \$6.038 million for the 1988 test year. The previous monthly toll had been \$6.832 million.

Foothills Pipe Lines (Yukon) Ltd. - Tariff

In June 1987, Foothills applied for amendments to its natural gas transportation tariff to allow the introduction of interruptible service. The Board held a public hearing in Ottawa during October 1987. A decision on the application is expected to be released early in 1988.

In December, the Board approved a request from Foothills for an interim order permitting the company to establish interruptible service on the Saskatchewan segment of its pipeline system (Zone 9) at the rate and under the terms and conditions contained in its application.

Inquiries

Sun Pipe Line Company Limited - Sarnia, Ontario Accident Inquiry

In October 1986, an accident on Sun's products pipeline near Sarnia, Ontario, resulted in injuries to four persons who were working on the site. The line was ruptured and the escaping butane ignited. Two private residences near the site were damaged by fire.

The Board's inquiry was held in Sarnia, Ontario in February 1987.

In April, the Board released its report on the inquiry which itemized the remedial steps to be undertaken by Sun in order to promote the safer operation of the pipeline in Canada.

The remedial steps include revising the company's safety procedures, increasing the inspectors' responsibilities, reinforcing the provision of safety-related information to contractors and sub-contractors, and investigating the feasibility of placing low vapour pressure products in the pipeline prior to excavation.

Interprovincial Pipe Line Limited - Camrose, Alberta Accident Inquiry

In October 1986, Interprovincial requested a review of the Board's decision to adopt recommendation 5.9 made by the Board's panel investigating a fatal accident in 1985 on the company's pipeline near Camrose, Alberta. The recommendation required pipeline companies under Board jurisdiction to remove all welds in certain circumstances and to check the soundness of a sample of welds in others.

On 23 October 1986, the Board decided to grant the review and sought the views of interested parties on the process to be followed for the review. The Board then held a preliminary meeting with

parties in January 1987 in Calgary to discuss the procedure to be followed for the review.

In a related matter, the Board invited industry to submit comments on all the recommendations in the inquiry panel's report other than recommendation 5.9. (Please refer to *Legislation and Regulations*.)

Industry made written submissions to the Board on six of the other recommendations in early October 1987, and plans to make written submissions on the remainder of the recommendations by early 1988. Because industry's submission to the review of recommendation 5.9 is dependent upon the Board's decision on several of the other recommendations, industry has decided to delay some of its field studies until the summer of 1988. On completion of its field studies, industry may hold a technical conference and plans subsequently to submit its new evidence and argument to the Board for consideration. It is anticipated that this material will be available in the early fall of 1988. The Board expects to then conduct its review and has reserved its decision on whether to hold a public hearing for that purpose.

Other

Westcoast Transmission Company Limited - Declaratory Order

In September 1987, Westcoast applied to the Board for a declaratory order concerning certain aspects of its pipeline system and its tolls. The Board subsequently requested interested parties to comment on Westcoast's application. The Board issued a letter on 30 November 1987 which contained certain findings concerning the Westcoast pipeline system and its tolls.

Other Board Activities

Oil

Orders

Since 1 June 1985, the effective date of the *Western Accord*, oil exports have been authorized by Board orders which specify neither volumes nor prices. During 1987, the Board renewed export orders to some 100 companies and issued new orders to 10 companies for the export of light and heavy crude oil and petroleum products. The Board continues to monitor export volumes and prices.

Pipeline Space Apportionment

In October, Interprovincial filed an application with the Board to modify the procedure it uses to allocate pipeline space on its system. The proposed apportionment procedure is similar to the current system except there would be no distinction made between crude oil tenders and petroleum product or natural gas liquids tenders. The combined tenders would be allocated on the basis of the total capacity of the pipeline system's three lines. As of the end of 1987, this application was still under review by the Board. It was approved in early 1988.

Staff Studies

In 1987, Board staff prepared two studies related to the supply and demand outlook for oil. These were entitled *Ontario Oil Supply Logistics 1986-2005* and *Crude Oil and Equivalent Supply-Demand, Medium-Term Outlook 1987-1990*.

Natural Gas

Changes in Procedures for Natural Gas Exports

The Board continued during 1987 to review all changes to export sales contracts pursuant to its responsibility under subsection 35(2) of the *National Energy Board Part VI Regulations*. In this regard, the Board's review ensured that any proposed changes satisfied the government's criteria for acceptability which require that export sales contracts contain provisions which permit adjustments to reflect changing market conditions; that exporters demonstrate that export arrangements provide reasonable assurance that the gas contracted will be taken; and that the arrangements are supported by the producers and the producing province supplying gas to the project.

The Minister of Energy, Mines and Resources, by letter dated 24 June 1987, asked the Board to reinstate a criterion for acceptability that had been removed at the time the *Agreement on Natural Gas Markets and Prices* was implemented. Because of the concern the Minister had about the implications of the United States

Federal Energy Regulatory Commission's Order No. 256 which disallowed the as-billed pass-through of some Canadian demand charges by American importers, he asked the Board to review all contract amendments and new contracts and to provide advice on whether the revenue generated by each export licence on an annual basis is sufficient to recover the intraprovincial and interprovincial transportation costs in Canada and to netback an acceptable price to the producers supplying the gas.

Propane and Butanes

In 1987, the Board continued to authorize exports of propane and butanes through the issuance of export orders and licences. No quantity or price restrictions are placed on exports of propane and butanes under export orders. However, to ensure that supplies of propane and butanes are adequate to meet domestic requirements, the Board continued to monitor Canadian supply and demand, and export quantities and prices.

Ethane

For purposes of export regulation, ethane is subject to the same criteria as is natural gas. No licences or orders were issued for the export of ethane during 1987.

Electrical Activities

During 1987, the Board continued to act in its advisory role, informing the Minister of Energy, Mines and Resources of the status of electricity exports. The Board also continued to consult with and contribute to other government departments and industry groups in both Canada and in the United States which coordinate the operation of electric power utilities throughout North America.

Among other activities, the Board provided several companies with copies of its CANEBEX computer program which calculates the economic benefits of economy energy interchanges between power systems. Work continued on the development of an improved version of the program which models the interconnections of five power systems. At the end of the year, testing was in progress.

Also, the Board agreed to advise Environment Canada - Parks on dealing with an application it received from Newfoundland and Labrador Hydro to construct a 138-kilovolt transmission line in Gros Morne National Park.

Energy Studies

The Board announced that during 1988 its staff would be updating the projections of Canadian energy supply and demand which were published in the October 1986 staff report, *Canadian Energy Supply and Demand 1985 - 2005*.

This updating of the 1986 staff report will be separate and distinct from any of the Board's regulatory activities.

It is intended that the report, which will cover the total energy outlook for Canada for the period 1987 to 2005, be published in the fall of 1988.

Pipeline Activities

The Board regulates 43 gas, oil and products pipeline companies. These pipeline systems are shown in Figures 17 and 18.

All new pipeline facilities must be authorized by the Board prior to their construction. The Board is responsible for monitoring the construction, operation and abandonment of pipeline facilities to ensure compliance with the Board's safety and environmental regulations and any specific conditions of the approving order or certificate. In addition, the Board reviews construction and operation costs to ensure that the tollpayer receives cost-effective service.

As part of the monitoring of the safe operation of pipelines, the Board reviewed various reports on subjects such as Interprovincial's methods for connecting replacement sections to the operating pipeline, TransCanada's investigation of stress corrosion cracking, pipeline integrity on the TransCanada and Interprovincial pipelines, and safety audits of various companies' operating practices under emergency and normal conditions.

In order to monitor the construction of pipeline facilities, the Board conducted inspections of several construction projects including the replacements between Edmonton, Alberta, and Regina, Saskatchewan, on the Interprovincial pipeline system, the 6.7-kilometre loop near Hamilton, Ontario on TransCanada's system and the 12-kilometre interconnection near Richardson, Saskatchewan of the systems of Petroleum Transmission and Cochin.

Following the signing in January 1987 of a memorandum of understanding between Labour Canada and the Board, 15 Board inspectors were appointed safety officers by the Minister of Labour to begin administering Part IV of the *Canada Labour Code*, effective 23 February 1987, within the pipeline industry that is under the Board's jurisdiction. To enable these safety officers to effectively administer and enforce the responsibilities identified by the memorandum, they received training by Labour Canada in its occupational safety and health requirements. The term of the agreement between Labour Canada and the Board is one year and will be renewed from year to year unless terminated in accordance with the provisions therein. The Board may terminate the agreement upon twelve months' written notice to the Minister of Labour.

During the past several years, the Board has been placing greater emphasis on the Canadian Standards Association (CSA) standards as the accepted criteria for the design, operation, maintenance and abandonment of oil and gas pipelines. Because of this, the Board increased its participation during 1987 in CSA activities at the subcommittee and working group levels. By participating in the review, revision and development of CSA standards, the Board is

Figure 17

Oil and Oil Products Pipeline Companies Regulated by the National Energy Board

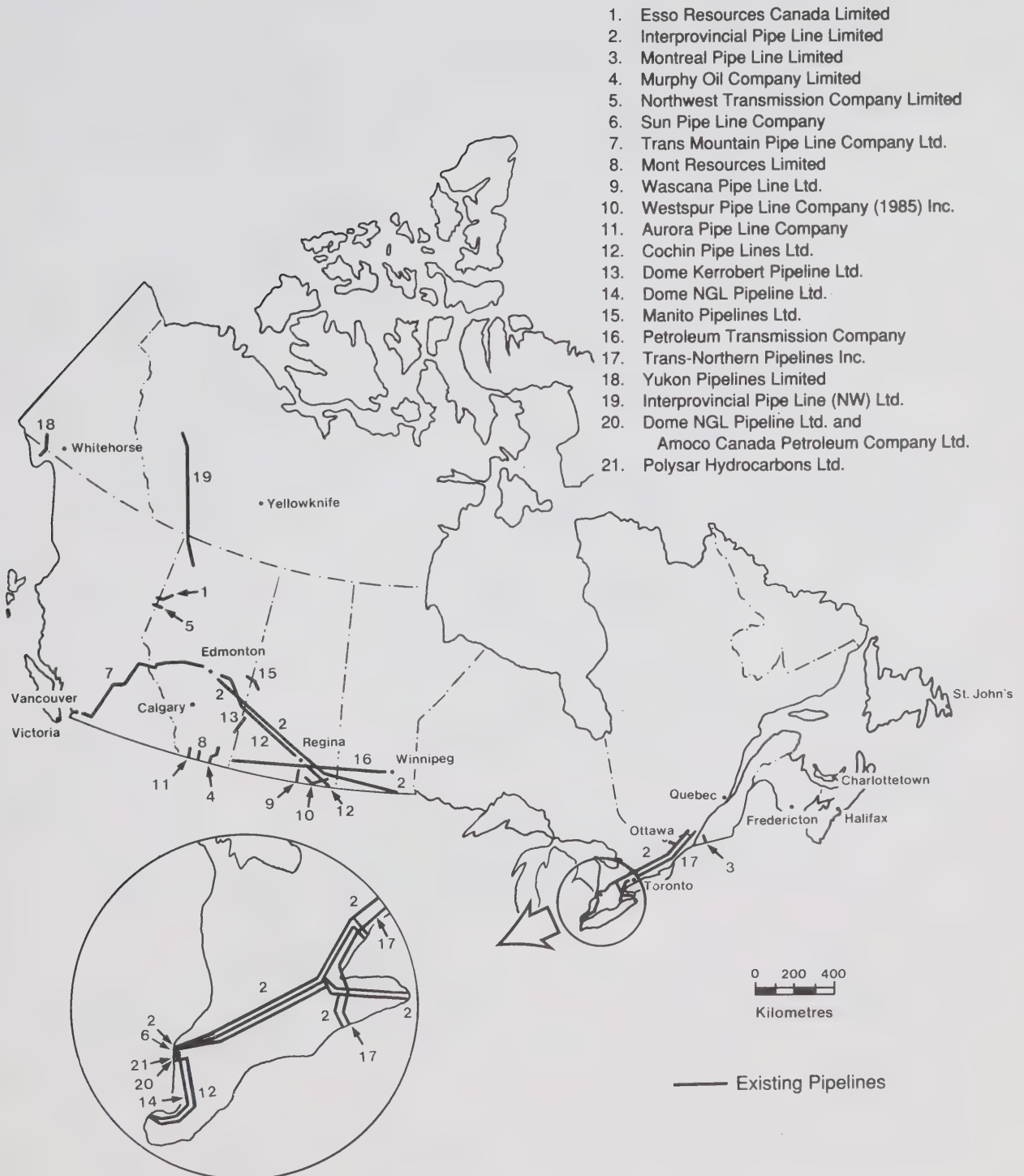
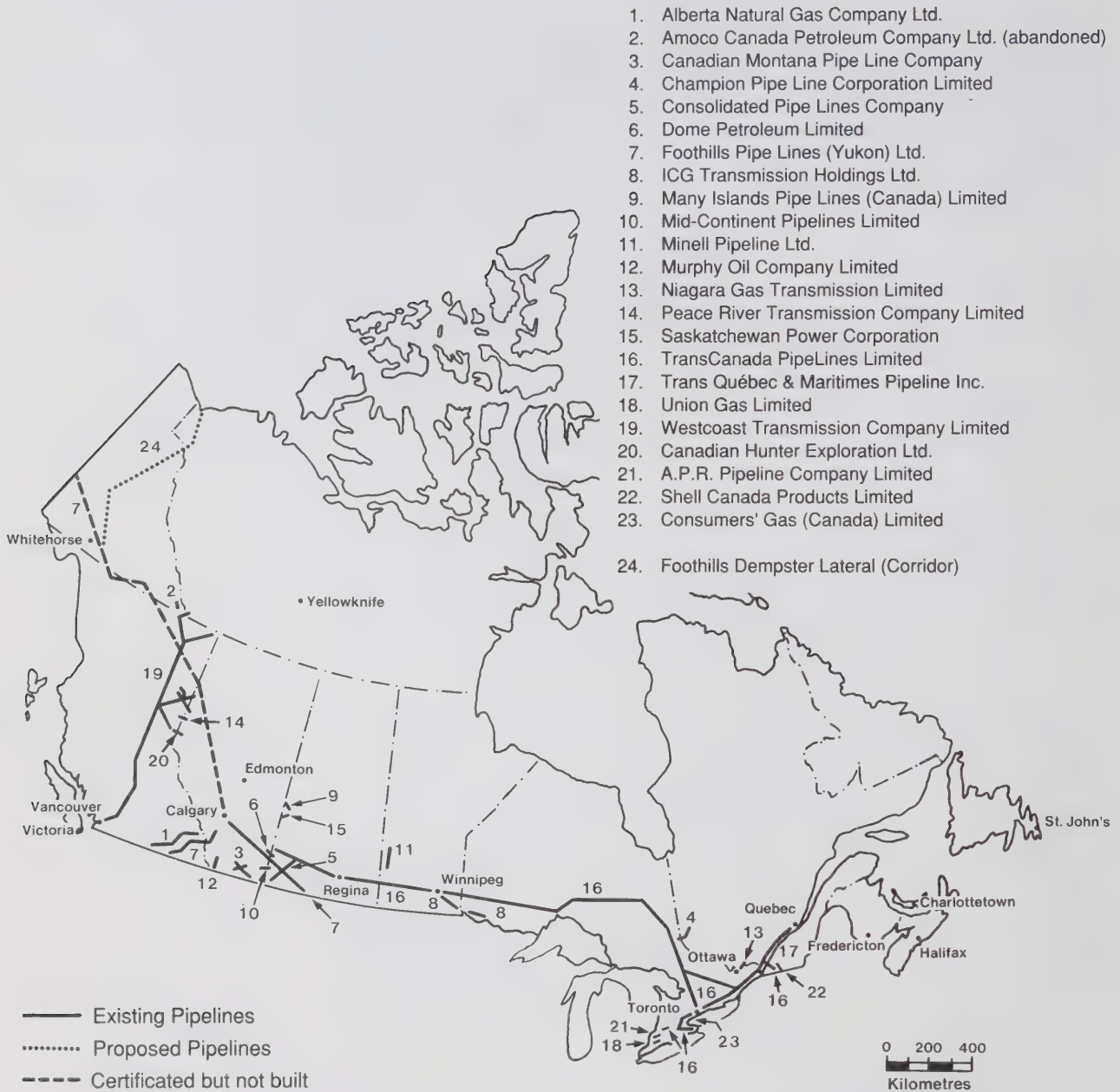


Figure 18

Gas Pipeline Companies Regulated by the National Energy Board



able to maintain an awareness of technological advances affecting requirements of the standards and the rationale behind changes to the standards as well as making its views known when changes are considered.

Approvals

Interprovincial received approval to increase the capacity of its system in western Canada. The new facilities include some additions and modifications to existing pump stations, installation of new tanks and the reactivation of 283 kilometres of an existing line between Cromer and Gretna, Manitoba. The Board also approved an application by Interprovincial to replace 87 kilometres of pipe between Edmonton, Alberta and Regina, Saskatchewan as part of its line integrity program.

Westcoast received approval to build the 6.6-kilometre Alces Pipeline and meter station in the Boundary Lake area of northeastern British Columbia. Westcoast also received approval to purchase and expand the Sikanni Gas Processing Plant, located in the Pink Mountains area of British Columbia.

TransCanada was given approval to build additional facilities on the St.-Mathieu extension, located near Montreal, Quebec. The facilities include a 6.9-kilometre line and compressor units.

The Board approved an application by Petroleum Transmission to install 12 kilometres of new pipe. The line extends from Richardson, Saskatchewan and interconnects with Cochin's pipeline.

Cyanamid received approval to construct a six-kilometre pipeline from its plant at Welland to the TransCanada pipeline at Black Horse Station, Ontario. The Federal Court of Appeal subsequently ruled that the Board did not have jurisdiction over this pipeline. (Please refer to *Legal Actions* for more information.)

Consumers' Gas (Canada) Limited received approval to purchase a 39-kilometre section of pipeline from TransCanada, extending from Vaughan to Brampton, Ontario.

The Board approved an application from A.P.R. Pipeline to purchase from Polysar two 2-kilometre lines crossing the St. Clair River and to construct a dual 11-kilometre pipeline system from the Petrosar Limited petrochemical refinery in Corunna, Ontario to the St. Clair River.

The Board also approved an application to lease part of an unused line of the Portland/Montreal pipeline system to Shell Canada, to convert it from crude oil to natural gas service and to reverse the direction of flow to carry the natural gas to export markets in the northeastern United States. This project came into service in November 1987.

In addition, the Board approved various other applications dealing with receipt or delivery facilities, pipeline replacements and modifications to existing pipeline facilities.

Routine Inspection

During 1987, routine inspections of the operation, maintenance and safety practices were conducted on 11 of the pipeline companies under the Board's jurisdiction. These inspections are designed to ensure that pipelines are operated and maintained in accordance with existing regulations and standards, thereby providing for the safety of the public.

Concurrently with the 1987 program of routine inspections, Board inspectors conducted workplace occupational safety and health inspections as part of the Board's agreement with Labour Canada. These inspections are designed to help ensure that workers' safety and health are being protected in accordance with existing regulations and standards.

Pipeline Incidents

The Board requires detailed reports of all incidents involving personal injury or fatality, pipeline malfunctions such as leaks, breaks, fires, or explosions, or any other event which results in a loss of service of a pipeline under its jurisdiction. The Board conducts public inquiries, as appropriate, to ascertain the cause of the incident and, when necessary, to establish specific measures to prevent a recurrence of that type of incident. These reports and inquiries are considered when revising pipeline safety and operational standards and regulatory requirements.

When a pipeline is damaged, the Board ensures that steps are taken to contain spills of hydrocarbons, to provide protection to the public and property, and to repair the damaged pipeline and return it to service as quickly as possible. The Board continues its surveillance of the site to ensure the effectiveness of the company's environmental rehabilitation program.

During 1987, the Board conducted various field inspections of pipeline incident locations to monitor the implementation of established emergency, safety and environmental protection procedures.

Table 6 shows the causes of pipeline incidents for the period 1983 to 1987. A total of 38 incidents occurred in 1987. No fatalities or serious injuries were reported during the year.

Table 6
Causes of Pipeline Incidents 1983-1987

	1983	1984	1985	1986	1987
Defective Welds	6	4	5	0	3
Material Failures	2	10	4	5	4
Third Party Damage	4	5	6	3	8
Corrosion	7	6	5	10	8
Miscellaneous	14	9	11	10	15
TOTAL	33	34	31	28	38

Utility Crossings and Infringements

All utility construction affecting pipelines regulated by the Board requires its approval. Proposed activities must meet standards ensuring safe construction practice.

In addition to random inspections of utility construction in 1987, the Board inspected the installation of over 1 700 kilometres of fibre-optic cable by Bell Canada on TransCanada's right-of-way in Ontario. Board inspections are designed to encourage safe construction practices near pipelines.

In 1987, 744 applications relating to pipeline crossings or right-of-way infringements were approved by the Board.

Environmental Matters

Environmental Protection

The construction and operation of pipelines and power lines can have a variety of adverse effects on the environment. To ensure that companies make every reasonable effort to protect the environment, the Board audits all phases of project planning, development and operation. The Board ensures that the environment is properly protected by evaluating the environmental impact statements submitted as part of project applications for completeness and accuracy in evaluating the environment and in assessing the impact of proposed construction on the environment. In addition, the Board ensures that, where negative effects on the environment cannot be fully mitigated or avoided, companies are prepared to restore and rehabilitate the affected areas. As part of the Board's audit function, companies constructing major projects must submit post-construction environmental monitoring reports documenting the mitigative measures implemented during construction and the recovery of the right-of-way following construction.

In 1987, the Board carried out several environmental inspections. Those included inspections of the 1987 pipe replacement project carried out on Interprovincial's pipeline between Edmonton, Alberta and Regina, Saskatchewan; construction by Westcoast in northeastern British Columbia; and construction by TransCanada, Petroleum Transmission, and A.P.R. Pipeline in Ontario. The Board found that the projects were being constructed in an environmentally acceptable manner, using proper mitigative and restorative techniques. The companies will monitor the rights-of-way next summer, submitting environmental monitoring reports in December 1988, and will be required to implement remedial action if that becomes necessary.

Board inspectors also monitored the rights-of-way of recently completed projects. During the summer of 1987, the Board monitored the rights-of-way of Interprovincial's expansion project, Westcoast's Sikanni pipeline in northeastern British Columbia, and Hydro-Québec's 450-kilovolt NEPOOL power line. In addition, Hydro-Québec's 120-kilovolt Bedford/Vermont power line was monitored

following the second growing season. The annual overflight inspection of the IPL (NW) pipeline in the Northwest Territories and northern Alberta was made during the summer. The recovery of the rights-of-way continues satisfactorily with few environmental impacts resulting from the construction or operation of the projects. Ongoing monitoring and surveillance programs will ensure that the mitigation of any future site-specific concerns are addressed.

The Board carried out routine inspections of operational pipeline facilities to determine the continuing environmental condition of those rights-of-way. The assessment of spill sites and the monitoring of their rehabilitation and restoration, along with the investigation of landowner complaints, form an integral part of the Board's environmental program.

In addition to regulating pipelines and international power lines, the Board also monitors the operation of associated facilities such as gas plants and oil-storage and loading terminals for compliance with environmental requirements. In 1987, the Board continued its involvement with odour emission abatement at Trans Mountain's Westridge Terminal by monitoring the loading of sour crude oil onto tankers. At the Westridge Terminal, the Board observed the test loading of a barge with sour crude oil where a caustic scrubber was used to remove hydrogen sulphide and mercaptans from the oil. The caustic scrubber reduced odour emission levels by 90 percent. The Board also monitored the operations at Trans Mountain's Burnaby Terminal, and the company's plans for odour abatement measures at that facility. Trans Mountain has filed an application for the implementation in 1988 of odour emission abatement measures in conjunction with its 1988 construction program.

Land Matters

Detailed Route Procedures

The Board did not receive any applications in 1987 where the detailed route procedures needed to be implemented; however, the Board exempted several projects from detailed route procedures where new lands were required. In each case the company demonstrated that options had been obtained on all necessary lands.

Landowners' Rights

The procedures for detailed route approval of pipeline facilities were initiated in March 1983. Those procedures focus on the rights of individual landowners affected by the pipeline project as well as adjacent landowners, and provide those owners with an easily accessible forum to present their concerns.

The detailed route procedures incorporate three distinct components: the land acquisition notice, the land acquisition agreement, and the detailed route hearing. The land acquisition notice to the landowner must set out a description of the lands required, details

of the compensation offered and how that compensation was determined, a description of the procedure for route approval, and a description of the procedure for negotiation and arbitration. The land acquisition agreement, among other things, restricts the agreement to the facilities to be installed at that time and allows the option of either a lump sum or periodic payments. Should periodic payments be requested, the landowner would have a right, every five years, to review the amount of compensation payable. The detailed route hearing, if convened, provides affected landowners, adjacent landowners and other interested parties an opportunity to present their concerns at a local public hearing. Parties who participate in these public hearings are able to recover their justifiable costs from the pipeline company.

Continued efforts were made by TQM to clarify all titles on property crossed by its right-of-way. As a result, several right-of-entry applications were granted TQM.

Native Land Claims

North of 60° latitude, the federal government has been negotiating the settlement of comprehensive native land claims. These land claims, which involve areas of proven and potential oil and gas reserves, include the Western Arctic Claim (Mackenzie Delta), the Claim of the Council of Yukon Indians (Yukon Territory), the Dene-Métis Claim (Mackenzie Valley), and the Eastern Arctic Claim (Eastern and High Arctic).

The Board was an observer at the negotiations and was an information source on those issues that may impinge on certain areas of the Board's jurisdiction. The Board's efforts have been directed to maintaining a single agency approval and regulatory process for major pipeline project proposals. Those efforts stem from the Board's belief that its one-window approach to project approvals assists all parties to the proceedings and assists in the implementation of a variety of public policies without placing an undue burden on proponents. Consistent with most governments' views, the Board views the incorporation of its process as an effective means of minimizing regulatory procedures and associated costs.

Financial Regulatory Matters

The Board's mandate in financial regulation is to set just and reasonable tolls for pipelines and to prevent unjust discrimination. To provide more effective regulation, the Board has taken steps to minimize the degree of financial regulation, taking into account public interest considerations. As a consequence, the pipeline companies regulated by the Board have been divided into two groups.

Group 1 consists of the ten major pipeline companies which are audited by the Board on a regular basis and whose operating results are continuously monitored by the Board. The Board actively regulates the tolls and tariffs of seven of these ten companies, usually through the public hearing process. Information on the

current year's toll proceedings is presented in *Hearings and Inquiries*.

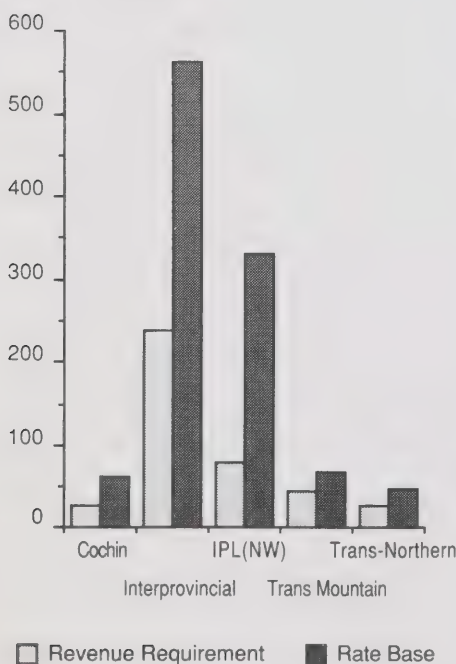
The Board regulates three of the Group 1 companies on a complaint basis. During 1987, the Board began regulating the tolls of Alberta Natural Gas and IPL (NW) on this basis. These two companies, together with Cochin, are the Group 1 pipeline companies currently being regulated in this manner.

The 1987 financial data for the Group 1 pipeline companies are found in Figures 19 and 20. The 1987 approved and actual rates of return on equity for these companies are illustrated in Figure 21.

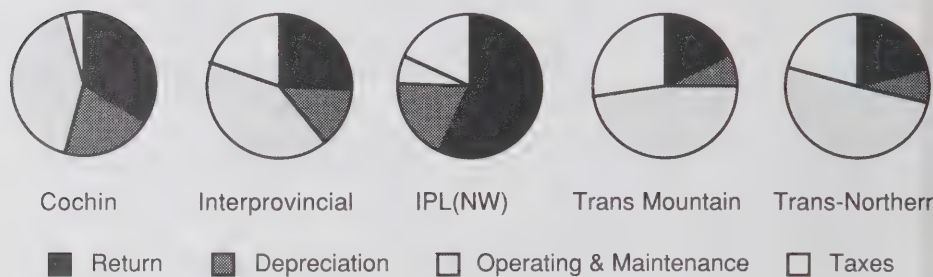
The pipeline companies under the Board's jurisdiction which are not included in Group 1 have been designated as Group 2 companies. The tolls of the Group 2 companies, of which there are 33, are filed with the Board and normally reviewed only in the case of a complaint. Their operating results are monitored through the review of their annual financial statements.

In 1986 the Board introduced a new basis of cost allocation to set tolls on the TransCanada system in order to reflect changes in gas marketing. Under this approach, an operating demand volume for each distributor is determined by recognizing the volume of firm direct sales which displace the distributor's contracted volumes with TransCanada. In its May 1987 decision on TransCanada's tolls, the Board decided to consider, on a case-by-case basis, requests to include displacement by interruptible direct sales in the determination of the operating demand volume.

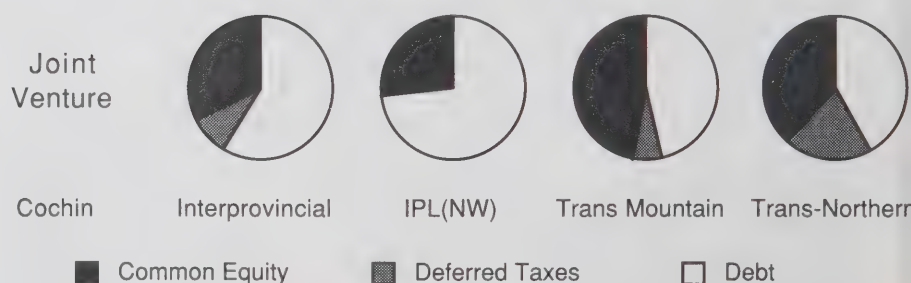
Figure 19
Oil Pipelines
(Millions of Dollars)



Components of Revenue Requirement



Capitalization of Rate Base



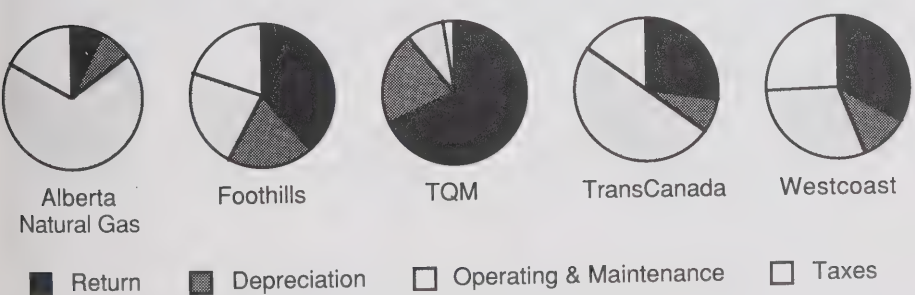
Reference: Financial Regulatory Appendix

The Board subsequently considered two such requests, one from Greater Winnipeg Gas Company in respect of interruptible volumes for Inland Cement Limited and one from ICG Utilities (Manitoba) Ltd. in respect of interruptible volumes for Simplot Chemical Company Ltd. The Board approved a reduction in the operating demand volume of ICG Utilities; however, the reduction was smaller than what the company had applied for. The Board denied any reduction in the operating demand volume of Greater Winnipeg.

Before deciding to regulate IPL (NW) on a complaint basis, the Board, in March 1987, examined a provisional toll application filed by the company, and approved a provisional toll for 1987. Trans Mountain's tolls were adjusted in October 1987 to reflect changes in throughput volumes and related costs. The Board also adjusted Interprovincial's tolls in December as a result of an application filed by the company in October.

On the basis of its review of Trans-Northern's 1987 third quarter surveillance report, the Board was concerned that changes in throughput and a number of other factors could cause the company to exceed by a wide margin its allowed rate of return on common equity in 1988. Having decided that a review of the company's forecast operating results was in order, the Board directed the company to file certain throughput and financial information for 1988. The Board also decided that the company's existing tolls would be interim until such time as the Board had completed its review of Trans-Northern's submission. Subsequent to the Board's request, Trans-Northern applied to the Board to reduce the company's tolls by 10 percent, on an interim basis, and indicated that it would file an application in February 1988. The Board accepted Trans-Northern's proposal.

Components of Revenue Requirement



Capitalization of Rate Base

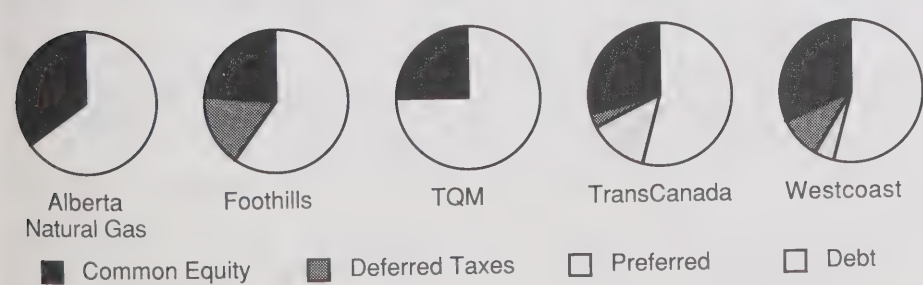
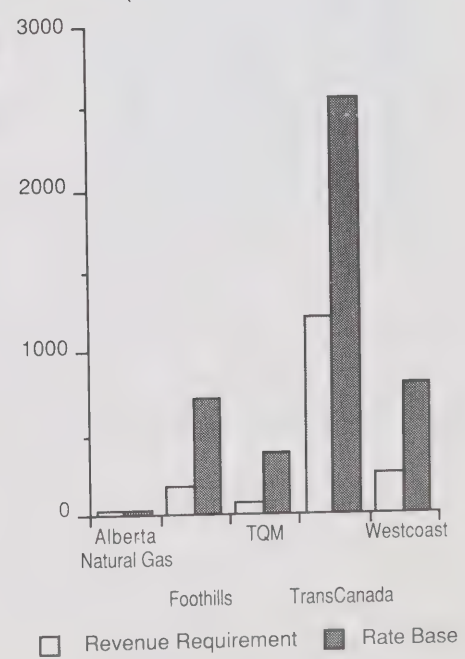


Figure 20
Gas Pipelines
(Millions of Dollars)

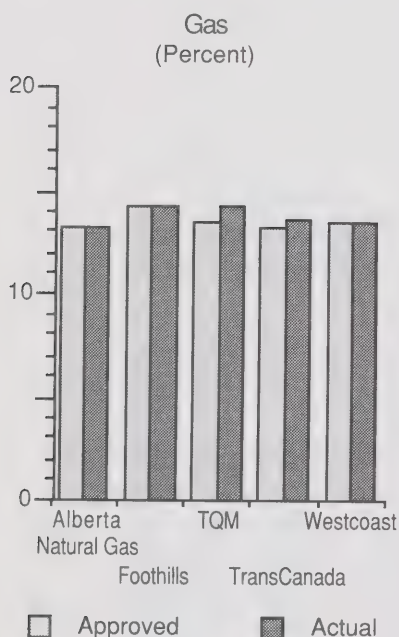
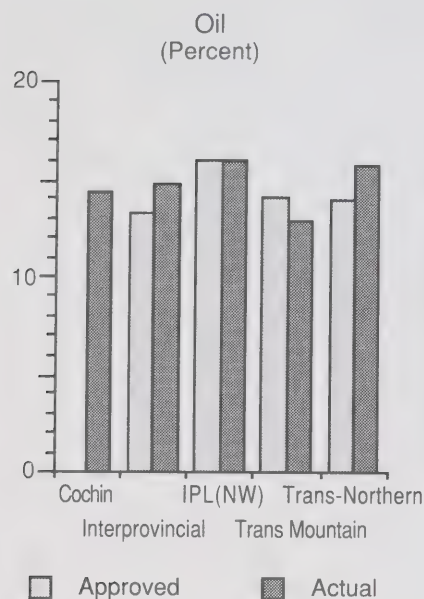


Reference: Financial Regulatory Appendix 1

Figure 21

Group 1 Companies

Rate of Return on Common Equity



Reference: Financial Regulatory Appendix 1

Under the provisions of the *Energy Administration Act*, the Board was responsible for the collection of export charges levied on crude oil and bulk petroleum product exports, a program which was effectively terminated in 1985. During 1987 the Board completed auditing these charges. The Board also completed in 1987 its audits related to the Transportation Fuel Compensation Recovery Charge program.

Legal Actions

This section describes the various legal actions in which the Board has been involved during 1987. The facts that gave rise to these actions can be found in *Hearings and Inquiries*.

Dome/Cochin and Minister of Energy for Ontario

In March 1986, Dome Petroleum Limited and the Minister of Energy for Ontario applied to the Federal Court of Appeal for leave to appeal the Board's February 1986 decision in which the Board decided that it had jurisdiction over certain ethane storage caverns located in Windsor, Ontario. Those caverns are used to store product shipped on Cochin's pipeline. Dome also applied to have the Court review and set aside the decision.

The Federal Court of Appeal granted leave to appeal and heard both actions on 12 January 1987. On 17 February 1987, the Court issued its decision, dismissing the applications.

Corporation of the Township of Flamborough and the Regional Municipality of Hamilton-Wentworth

In February 1986, the Township of Flamborough and the Regional Municipality of Hamilton-Wentworth applied to the Federal Court of Appeal for leave to appeal the Board's December 1985 decision on the location of Interprovincial's propane terminal facilities in the Flamborough, Ontario area.

On 2 April 1986 the Court granted leave to appeal on two grounds, both of which related to the terms and conditions in the Board order which authorized construction.

The appeal was heard in Toronto on 4 May 1987. The Court rendered its decision on 7 May 1987 and allowed the appeal. Paragraphs 12 to 15 of the Board's order, which contained the conditions to be met by Interprovincial before the Board would grant leave to open the facilities after construction, were set aside and referred back to the Board for reconsideration.

On 1 October 1987, Interprovincial advised the Board that it did not wish to proceed with the project. On 29 October 1987 the Board revoked the order authorizing the facilities.

Union Gas Limited et al.

In February 1987, Union Gas and The Consumers' Gas Company Ltd. applied to the Federal Court of Appeal to review and set aside the Board's December 1986 decision authorizing the construction by Cyanamid of a short bypass pipeline in southern Ontario. In addition, both companies, together with ICG Utilities (Ontario) Ltd. and the Minister of Energy for Ontario, applied to the Federal Court of Appeal for leave to appeal the Board's decision.

On 16 March 1987, in response to applications to the Board by Consumers' and the Minister of Energy for Ontario, the Board granted a stay of its December 1986 decision on an interim basis, while it decided whether the stay should be granted on a final basis.

As part of a related proceeding before the Ontario Energy Board (OEB), a reference was made by the OEB to the Divisional Court of the Supreme Court of Ontario to determine whether the authority to regulate "typical" bypass facilities situated in Ontario was within the exclusive jurisdiction of the Province of Ontario and, therefore, properly exercised by the OEB. The Court issued its decision on 26 March 1987 in which it decided that the Province of Ontario and, thereby the OEB, had exclusive jurisdiction over such facilities. Following that decision, the applications before the Federal Court of Appeal and before the Board were withdrawn.

On 30 April 1987, the Lieutenant Governor of Ontario referred the question of jurisdiction over typical bypass facilities to the Court of Appeal of Ontario. That reference was heard on 4 October 1987 and the Court reserved its decision.

Cyanamid Canada Pipeline Inc.

In a related matter, on 6 April 1987, Cyanamid applied to the Board for a review of the Board's December 1986 decision that it had jurisdiction over a short bypass pipeline to be constructed by Cyanamid from its plant at Welland, Ontario, to the TransCanada pipeline at Blackhorse Station, Ontario. It also requested that the question of the Board's jurisdiction over that bypass pipeline be referred to the Federal Court of Appeal.

The Board referred the jurisdictional question to the Federal Court of Appeal and the Court heard the reference on 4, 5 and 6 November 1987. On 27 November 1987, the Court issued its decision in which it stated that the Board did not have jurisdiction over the proposed Cyanamid pipeline.

Cyanamid has since filed with the Supreme Court of Canada an application for leave to appeal the decision of the Federal Court of Appeal.

Independent Petroleum Association of Canada (IPAC)

On 16 July 1987, IPAC applied to the Federal Court of Appeal for leave to appeal the portion of the Board's May 1987 decision

relating to interruptible tolls to be charged by TransCanada. IPAC also applied to have the Court review and set aside the decision.

On 11 November 1987, IPAC discontinued its application for leave and, then, on 13 November 1987 it discontinued its application to have the decision reviewed and set aside.

***Northridge Petroleum Marketing, Inc. and
ENRON Canada Ltd.***

In late June 1987, Northridge Petroleum Marketing, Inc. and ENRON Canada Ltd. applied to the Federal Court of Appeal for leave to appeal the Board's decision of 26 May 1987 concerning the complaints Northridge and ENRON had raised concerning tolls charged by TransCanada PipeLines Limited. Northridge and ENRON had complained about the tolls charged for gas sold under TransCanada's competitive marketing program agreements.

On 18 August 1987, the Federal Court of Appeal granted leave to appeal. The appeal documentation is being prepared.

Manitoba Oil and Gas Corporation

On 18 November 1987, Manitoba Oil and Gas applied to the Federal Court of Appeal for leave to appeal the Board's decision of September 1987. In that decision, the Board denied Manitoba Oil and Gas' request that TransCanada PipeLines Limited be ordered to transport natural gas for the corporation.

That application is currently before the Court.

Westcoast Transmission Company Limited

On 3 October 1986, Westcoast applied to the Federal Court of Appeal to review and set aside the Board's August 1986 decision on Westcoast's 1986 tolls. Westcoast also applied to the Court for leave to appeal the Board's decision.

On 30 March 1987, Westcoast withdrew its application for leave to appeal and at the same time advised the Board that it intended to discontinue its application to have the decision reviewed and set aside.

Legislation and Regulations

The following section outlines changes that were made during 1987 to the *Act, Regulations, and Rules* under which the Board operates. The Board's quarterly *Regulatory Agendas* provide additional detail on this subject.

Onshore Pipeline Regulations

The *Onshore Pipeline Regulations* will replace and combine the existing *Oil Pipeline Regulations* and *Gas Pipeline Regulations*. These regulations provide for the safe design, construction and operation of onshore oil and gas pipelines. The Board approved the regulations in February 1986. Since that time, they have been undergoing examination by the Department of Justice. The Board expects to have them published in early 1988.

The *Onshore Pipeline Regulations* may be amended subsequently, depending on the outcome of the Board's review of comments from industry and other interested parties on the recommendations, other than recommendation 5.9, which were included in the Board's report dated June 1986 on an accident in February 1985 on Interprovincial's pipeline system. (Please refer to *Hearings and Inquiries*.)

Offshore Pipeline Regulations

On 20 December 1984, the Board issued for comment the first draft of its new *Offshore Pipeline Regulations*. These regulations provide for the safe design, construction, and operation of offshore pipelines. The CSA preliminary standard, CSA Z187, *Offshore Pipeline Standard*, forms the technical basis for the Board's new *Offshore Pipeline Regulations*.

Interested parties were invited to submit comments on these regulations by 15 April 1985. Following a meeting with industry representatives on 18 April 1985, an industry task force was established to review these regulations. Based on their recommendations, a further draft is being prepared which will be submitted for final comment by the task force and other interested parties.

Rules of Practice and Procedure

The Board issued a revised draft of the *Rules of Practice and Procedure* and schedules on 7 May 1987. Although the revised rules must still be examined by the Department of Justice and published in the *Canada Gazette*, the Board has asked all parties to use them.

Regulations Respecting Crossings of Pipelines

In a letter dated 16 July 1986, the Board announced that it was considering revising its regulations governing the crossing of federally regulated pipelines by third parties. These regulations cover crossings such as roads, railways, drainage systems, telephone and power lines, and other pipelines.

During 1987, the Board issued for comment three successive drafts of its regulations and invited pipeline companies and major utilities to submit their views.

To address some concerns of the Department of Justice, the regulations were divided into two sets of regulations, as follows:

Part I of the regulations will set out the circumstances and conditions under which a third party would not require leave of the Board before excavating on a pipeline right-of-way or constructing a highway, railway, ditch, utility, etc., across a pipeline or its right-of-way. As a condition for not requiring leave, the excavator or constructor must fulfill a predetermined set of responsibilities.

Part I has been approved in principle by the Board, but is subject to examination by the Department of Justice before implementation.

Part II of the regulations will define the responsibilities of the pipeline company necessary to ensure safety during the construction of the crossing.

Part II has been approved by the Board and is subject to examination by the Department of Justice and approval by the Governor in Council.

International Power Line Crossing Regulations

Following receipt of comments from interested parties on the draft *International Power Line Crossing Regulations*, the Board approved a new draft in January 1987.

On advice from the Department of Justice, the regulations were divided into two sets of regulations, as follows:

International Power Line Crossings, Construction and Abandonment Regulations

These regulations deal with crossings by international power lines as well as the company's responsibilities to maintain crossing records, abandon crossings, and report incidents. The regulations are subject to examination by the Department of Justice and approval by the Governor in Council.

International Power Line Crossings Regulations

These regulations deal with crossings of international power lines and set out the terms and conditions under which leave of the Board to cross such power lines need not be obtained. The regulations have been approved in principle by the Board and are subject to examination by the Department of Justice prior to implementation.

National Energy Board Part VI Regulations

On 26 June 1986, the Board issued for comment a proposed amendment to the *Part VI Regulations* that would increase the limits of new firm export orders for electricity from 50 to 60 megawatts and from 250 to 400 gigawatt hours. For new interruptible energy and equichange, storage, adjustment and carrier transfer exports, the limit would be increased to 1 000 gigawatt hours. The term of these export orders would be three years. Respondents supported the proposed amendment.

The amendment received Governor in Council approval on 20 August 1987.

Oil Product Designation Regulations

Trans Mountain Pipe Line Company Ltd., Neste Oy (Finland's national oil company), Celanese Canada Inc. and Hoechst Celanese Corporation are considering constructing a facility in Edmonton, Alberta to produce methyl tertiary butyl ether (MTBE), provided this product can be transported to the west coast by pipeline, thereby giving access to markets in California and elsewhere. MTBE is an octane enhancer used as a replacement for tetra ethyl lead in gasoline. Methanol currently being produced in Alberta would also gain access to new markets if it could be transported to the west coast by pipeline.

New regulations drafted by the Board designate MTBE and methanol as oil products pursuant to section 89 of the *National Energy Board Act*. This designation permits the transport of the products by pipeline. (The regulations also exempt the products from the import and export licensing requirements of Part VI and VI.1 of the Act.) Without these enabling regulations, Trans Mountain would not be able to transport methanol and MTBE from Edmonton to the west coast.

These regulations have been approved by the Department of Justice and have been forwarded to the Minister for Governor in Council approval.

Amendments to the National Energy Board Act

National Transportation Act

In the *National Transportation Act, 1987*, amendments were made to the *National Energy Board Act* giving the Board jurisdiction over combined pipelines and the power to regulate tolls and tariffs in respect of such pipelines. A combined pipeline is a pipeline which is used for the transmission of oil or gas with any other commodity. These amendments to the *National Energy Board Act* are effective 1 January 1988.

Functions and Responsibilities

Responsibilities Under the National Energy Board Act

The Board has two principal responsibilities under the *National Energy Board Act*:

- to regulate specific matters concerning oil, gas and electricity in the public interest, and
- to advise the government on the development and use of energy resources.

The Board has the authority to hold inquiries into any aspect of energy matters under its jurisdiction and to issue reports for the use and information of government, Parliament, and the general public.

The regulatory roles of the Board are described below.

Export Licences and Orders

The Board issues long-term licences for the export of oil, gas, and electricity. Such licences are normally granted following public hearings. In issuing export licences, the Board must satisfy itself that, among other things, the quantities of energy exported do not exceed the surplus remaining after making allowance for reasonably foreseeable Canadian requirements. The Board also issues orders for short-term exports of energy commodities subject to the restrictions imposed in the *National Energy Board Part VI Regulations*. In addition, the Board authorizes licences and orders for imports of natural gas.

Regulation of Pipeline Traffic, Tolls, Tariffs, and Accounting Practices

The Board regulates the traffic, tolls and tariffs of pipeline companies under federal jurisdiction to ensure that the tolls are just and reasonable and that there is no unjust discrimination in tariffs or service.

Certificates of Public Convenience and Necessity for Pipelines and Power Lines

The Board grants certificates to construct and operate interprovincial and international oil, gas, and petroleum products pipelines, as well as international and designated interprovincial electric power lines. Before a certificate is issued, the Board is required to hold a public hearing.

Detailed Routing - Pipelines and Power Lines

Persons whose lands may be affected by the route of a pipeline or power line approved by the Board can present their views to the Board at a local public hearing. Their evidence is considered in the determination of the final detailed route of the line.

Pipeline and Power Line Orders

The Board approves without a public hearing minor pipeline facilities or minor additions to, or modifications of, existing pipeline systems. These approvals are restricted to pipelines not more than 40 kilometres long and to installations such as tanks, pumps, compressors, and meter stations. The Board may also authorize, without a public hearing, the construction and operation of international power lines not exceeding 50 kilovolts.

Pipeline Safety

The Board's *Oil and Gas Pipeline Regulations* provide for the safe design, construction, and operation of pipelines under the Board's jurisdiction. To ensure high standards of pipeline construction and operation, the Board carries out inspection programs and conducts investigations of pipeline system performance.

Pipeline Utility Crossing Orders

To enhance public safety, the Board grants prior approval to utilities crossing a pipeline, thereby ensuring design compatibility and reducing the possibility of damage to the pipeline. It also establishes the conditions under which a pipeline may be constructed across an existing utility, thereby ensuring the integrity of other utility services. Construction of a pipeline crossing navigable water or a railway requires permission of the Minister of Transport or the National Transportation Agency. (New regulations will change the way in which the Board administers its responsibilities for crossings. Please refer to *Legislation and Regulations*.)

Environmental Protection

The Board considers the environmental implications of any proposal to build and operate an oil or gas pipeline or international power line. Companies preparing an application to the Board are encouraged to anticipate and discuss with all levels of government, public interest groups, and affected landowners the environmental issues and concerns that the proposed project could create. Such early planning with respect to environmental matters produces a more complete application addressing the appropriate alternatives and taking into account the public's concerns.

To ensure the highest level of environmental protection, the Board welcomes interventions at hearings from local environmental and public interest groups, as well as concerned individuals. To encourage public participation, the Board often convenes the hearing in the area where construction impacts would occur.

After the issuance of a certificate or order, the Board audits the company's construction activities, and later, during the operation of the system, its routine maintenance and monitoring procedures. In that way, the Board can be satisfied that the company is continuing to protect the environment, and to ensure public health and safety.

Socio-Economic Impact

As part of its facilities approval process the Board considers local and regional social and economic concerns. The Board ensures that applicants take all reasonable steps to minimize project-induced negative impacts and to enhance project benefits accruing to local and regionally affected social groups. This can include a pre-project socio-economic impact assessment, a review of proposed socio-economic action plans, post-certification monitoring of the success or failure of the action plans, and an assessment of actual project impacts.

Responsibilities Under the Energy Administration Act

For many years, the Board had important responsibilities in administering Parts I and I.1 of the *Energy Administration Act*.

Parts I and I.1 pertained, respectively, to the collection of charges on oil exports and the collection of the Transportation Fuel Compensation Recovery Charge. Although the export charge program ended, in effect, in 1985, and the TFCR Charge program in 1983, some activity remained in the area of auditing and some refunds are still to be made.

Responsibilities Under the Northern Pipeline Act

The Board's statutory responsibilities regarding the Canadian portion of the Alaska Natural Gas Transportation System relate mainly to the regulation of tolls and tariffs, the approval of pipe specifications, the granting of leave to open orders, and the regulation of the operation of the line. However, the Board's activities under the *Northern Pipeline Act* will be negligible until the main project proceeds.

Labour Canada Agreement

A memorandum of understanding has been entered into by the Board and Labour Canada, whereby certain Board inspectors have been appointed safety officers by the Minister of Labour and have assumed operational responsibilities for matters of occupational safety and health as covered in Part IV of the *Canada Labour Code*. The agreement, which became effective on 23 February 1987, includes all pipelines under the Board's jurisdiction but excludes certain areas such as head offices and regional offices of the pipeline companies; these will continue to be the responsibility of Labour Canada.

Public Access and Participation

The Board is a court of record. With specific exceptions relating to the confidentiality of certain competitive pricing information, the Board's deliberations are conducted on the basis of publicly filed, publicly available information. For major applications and inquiries, the Board holds public hearings at which applicants and interested persons have full rights of participation in the official language of their choice. To give parties an opportunity to discuss their concerns or questions, the Board provides advance notice of its hearings and allows time for parties to respond to requests for information.

In addition, the Board issues quarterly regulatory agendas on matters coming before the Board as well as information bulletins and press releases on a variety of matters pertaining to Board activities.

Implementation of Board Decisions

When the Board is prepared to grant a certificate for a pipeline or a power line or to issue a licence for the export of natural gas or electricity, the import of natural gas, or the long-term export of oil, it so reports to the Governor in Council through the Minister of Energy, Mines and Resources. If a certificate is approved by the Governor in Council, the certificate is then issued by the Board. In the case of long-term export or import applications, licences issued by the Board go into effect on approval by the Governor in Council. A decision of the Board to refuse an application is not subject to referral to the Governor in Council. The Board's Reasons for Decision on applications are issued as public documents. The Board's decisions on tolls and tariffs are made without reference to the Governor in Council, as are the majority of the Board's day-to-day decisions.

Reviews and Appeals of Board Decisions

The Board may review, rescind, or change any of its orders or decisions, or rehear any application before deciding on it. It may also change a previously issued certificate or licence, but no such change is effective until approved by the Governor in Council.

Parties may apply to the Board requesting that a decision be reviewed. A decision may be appealed to the Federal Court of Appeal, with leave of that Court, provided the appeal is based on a point of law or jurisdiction.

Awarding of Costs

Except in detailed route hearings, the Board does not have the power to award costs to participants in its proceedings.

In the case of detailed route hearings, the Board may establish the appropriate level of compensation to be paid to a landowner for costs associated with participation in the hearing.

Organization

Members of the National Energy Board

The membership of the Board as of 31 December 1987 was:

Roland Priddle	Chairman
Jean-Guy Fredette	Vice-Chairman
Livia M. Thur	Associate Vice-Chairman
A. Digby Hunt	Associate Vice-Chairman
Jacques Farmer	Member
John R. Jenkins	Member
R. Byron Horner, Q.C.	Member
William G. Stewart	Member
A. Boyd Gilmour	Member
Claude Senneville	Temporary Member

Jean-Guy Fredette assumed the duties of Vice-Chairman on 29 November 1987. Ralph F. Brooks' term as Member and Vice-Chairman expired on 28 November 1987.

John R. Jenkins, who was first appointed to the Board in 1980 was reappointed effective 13 November 1987 for a one-year period.

Claude Senneville was appointed a temporary Board Member on 24 February 1987 and was named a member of the panel that conducted the hearing into Hydro-Québec's application to export power to New England Utilities.¹

Standing Panels

The Board assigns much of its non-hearing regulatory work to five standing panels, each composed of a quorum of three Board Members.

The standing panels refer to the Board as a whole any matters involving Board policy, regulatory principles, or jurisdiction, or that warrant a public hearing. Except as noted below, panels do not issue or amend certificates or licences, or decide matters requiring a public hearing.

Members of the Board's standing panels as of year-end, and their responsibilities, are given below. The composition of standing panels is changed at appropriate intervals to provide members with an opportunity to become familiar with all aspects of the Board's work. The first-named member of each panel is the Panel Chairman, the fourth is the Alternate Member. The Board's Chairman is an ex-officio member of all panels.

1. Mr. Senneville's term expired 23 February 1988.

Oil Panel

R.B. Horner
J.R. Jenkins
J. Farmer
W.G. Stewart

Issues export orders for crude oil and petroleum products, regulates matters of traffic on oil pipelines; advises the Minister respecting oil-related energy matters in general; monitors and reports on oil exports as required by the *Western Accord* (the March 1985 Agreement between Canada, Alberta, British Columbia and Saskatchewan on oil and gas pricing and taxation).

Gas Panel

A.D. Hunt
R.B. Horner
A.B. Gilmour
R. Priddle

Exercises the powers of the Board on matters relating to natural gas, propane, butanes, and ethane, and on matters of traffic in gas pipeline services; approves gas export contract amendments and, subject to Governor in Council approval, issues concordant amendments to gas export licences; issues short-term gas orders; advises the Minister on all matters relating to gas export markets.

Electrical Panel

L.M. Thur
J.R. Jenkins
W.G. Stewart
A.B. Gilmour

Exercises the Board's powers on all matters relating to electricity; issues electrical exemption and export orders; advises the Minister on electricity matters.

Pipeline Panel

J.R. Jenkins
R.B. Horner
A.B. Gilmour
J. Farmer

Exercises the powers of the Board in matters relating to the construction, operation, and maintenance of pipelines, including safety and environmental considerations.

Financial Regulatory Panel

W.G. Stewart
L.M. Thur
J. Farmer
J.R. Jenkins

Exercises the powers of the Board with respect to tariffs and tolls charged by pipeline companies under the Board's jurisdiction.

1988 Standing Panels

Effective 4 January 1988, the Oil, Gas and Electrical Panels will be combined into a new Energy Commodities Panel, composed of five members. The composition of the three standing panels as of that date follows. The first-named member of each panel is the Panel Chairman. The Board's Chairman is an ex-officio member of all panels.

Energy Commodities Panel

R.B. Horner
J.-G. Fredette
L.M. Thur
A.D. Hunt
W.G. Stewart

Pipeline Panel

A.B. Gilmour
J.R. Jenkins
R.B. Horner
J. Farmer (Alternate)

Financial Regulatory Panel

J.-G. Fredette
W.G. Stewart
A.B. Gilmour
J. Farmer (Alternate)

Staff

For the fiscal year 1987-88 the Board's budget was \$26.8 million with a person-year allocation of 433.

The Board undertook a voluntary workforce adjustment in 1987-88 from 433 to 358 person-years. This adjustment was carried out following analysis of staff required in the light of changes to the Board's regulatory mandate and in energy industry activity levels. As a result, 75 employees were declared surplus. As of year-end 84 of these employees have retired, found outside employment, or been re-deployed elsewhere in the Board, or other federal departments or agencies.

The Board's offices and branches are described below; the inside back cover of this report lists the Board's senior staff.

The Executive Director is the Board's chief operating officer with responsibilities that include the overall management of the Board, the acquisition and allocation of human and financial resources, and the efficiency and effectiveness of Board activities and operations.

The Finance Branch co-ordinates and administers the financial policies under which the Board operates and provides advice and services relating to financial activities.

The Personnel Branch provides advice and services in the areas of staffing, human resources planning, training, affirmative action, health and safety, security, official languages, classification, staff relations, and pay and benefits.

The Plans and Evaluations Branch is responsible for strengthening the effectiveness of staff support, the co-ordination and administration of policies, and the provision of advice and services in areas of finance and general administration, and security.

The Director General, Energy Regulation is responsible for the integration of all staff activities involving the regulation of energy exports. This encompasses planning and co-ordinating all work affecting the regulation of exports of oil, gas, and electricity under Part VI of the *National Energy Board Act*, and co-ordinating the analysis of all matters related to energy demand, supply and surplus under Part II of the Act.

The Economics Branch advises the Board on economic and socio-economic matters and maintains an energy statistics unit. The Branch prepares projections of energy demand in Canada and maintains surveillance of similar studies done for the United States. The Branch's responsibilities include analysis of the impact of proposed energy projects on the economy and socio-economic conditions of Canada and its regions. It also assesses the extent to which Canadians will have an opportunity to participate in projects.

The Energy Supply Branch is responsible for advising the Board on matters relating to oil and gas exploration, drilling, and production and forecasts trends in oil and gas supply from conventional, oil sands, synthetic, and frontier sources. The Branch independently calculates the reserves and deliverability of gas and the reserves and producibility of oil. The calculation of gas and oil reserves by pool is carried out in the Board's Calgary office.

The Electric Power Branch advises the Board on matters relating to electricity export licensing, international power line certification, detailed route approval and export monitoring. The Branch prepares supply and demand forecasts for electricity that are used in dealing with electrical and other applications, reviews the American market for electricity, and provides advice to the Board on matters under federal jurisdiction that relate to the production, transportation, sale, and exchange of electricity.

The Gas Branch advises the Board on matters related to natural gas and gas products, including the regulation of all matters relating to traffic in gas pipeline services and the export of gas and gas products by orders and licences. The Branch maintains a statistics unit which is responsible for the collection and dissemination of operational data related to the consumption and transportation of gas and gas products. As well, the Branch is responsible for preparing short-term forecasts for domestic and export gas and gas products demand. In addition, it plays a supportive role in all other regulatory activity related to gas and gas products.

The Oil Branch provides advice on oil-related energy matters, including oil markets, transmission, processing, distribution, and the short-term balance of supply and demand for feedstocks and oil products. The Branch advises the Board on oil pipeline traffic matters and reviews the export prices of domestic crude oil and petroleum products and international oil prices.

The Director General, Pipeline Regulation integrates all staff activities relating to the regulation of gas, oil, and petroleum products pipelines. This encompasses design, construction, operation, safety, and environmental concerns specified under Part III of the *National Energy Board Act* and matters regarding tolls and tariffs under Part IV of the Act.

The Environment and Right-of-Way Branch is responsible for providing advice to the Board with respect to the protection of the environment and the acquisition of land for pipelines and international power lines. The Branch assesses submissions from affected landowners regarding the detailed route of those lines, verifies the accuracy of right-of-way acquisitions, and evaluates the technical requirements related to the safety of third-party crossings of pipelines.

The Pipeline Engineering and Operations Branch advises the Board on matters relating to pipeline certificates issued under the *National Energy Board Act* and for the regulation of the safety of pipeline facilities under the Board's jurisdiction. The Branch is the

Board's principal source of advice on engineering matters included in applications by pipeline companies for facilities construction and tolls, and has responsibilities for administering certain aspects of Part IV of the *Canada Labour Code*.

The Financial Regulatory Branch has the primary responsibility for advising the Board on all matters concerning tolls and tariffs charged by the oil and gas pipelines. As such, it takes a leading role in dealing with all toll applications that come before the Board by providing financial analysis and co-ordinating staff support. It also monitors and audits the financial performance of pipelines under the Board's jurisdiction and conducts financial analysis on applications to the Board for the construction of pipeline facilities. In addition to being the Board's principal source of financial advice, it also conducts audits of petroleum export charges, gas export licences, and transportation costs under specific sections of the *National Energy Board Act* and the *Energy Administration Act*.

The Law Branch provides legal advice to the Board on all matters relating to the Board's powers and responsibilities, acts as Counsel for the Board at public hearings, and represents the Board in proceedings before the Federal and Supreme Courts of Canada.

The Office of the Secretary receives all applications and submissions and co-ordinates their consideration by the Board. It advises the Board on the scheduling of hearings, and makes all administrative arrangements for public hearings in Ottawa and across Canada.

In addition, it provides media and public relations services, publications services, property and materiel management, records management services, and operates the Board's library. It administers the *Access to Information and Privacy Acts* and co-ordinates translation services with the in-house translation unit provided by Secretary of State.

The Information Technology Branch is responsible for computer systems services, word processing support, and data processing support. This includes consultative services on computer operations, data management, program design and development, and advisory services on the latest data processing techniques and applications. Branch responsibilities also include the integration of information and processing systems and services for the Board.

Reasons for Decision Issued in 1987

1. CYANAMID CANADA PIPELINE INC. - In the matter of an application under section 49 and subsection 59(3) of the *National Energy Board Act*. (Hearing Order GH-3-86) - December 1986
2. PROGAS LIMITED - In the matter of ProGas Limited - Application for a licence to export natural gas (Hearing Order GH-5-86) - February 1987
3. ALBERTA NORTHEAST GAS EXPORT PROJECT - In the matter of applications by Alberta Northeast Gas, Limited, TransCanada PipeLines Limited, ProGas Limited, ATCOR Ltd and AEC Oil and Gas Company - Applications pursuant to sections 17 and 82 of the *National Energy Board Act* for natural gas export licences (Hearing Order GH-1-87) - March 1987
4. SUN PIPE LINE COMPANY LIMITED - Report in the matter of a public inquiry into an accident on the pipeline system of Sun Pipe Line Company near the St. Clair River Crossing in October 1986 near Sarnia, Ontario - (Hearing Order MH-2-86) - March 1987
5. WESTCOAST TRANSMISSION COMPANY LIMITED - Application dated 12 February 1987 with respect to the Export Interruptible Sales Toll - (Hearing Order RH-1-87) - April 1987
6. TRANSCANADA PIPELINES LIMITED - Application dated 14 July 1986 for new tolls effective 1 January 1987 - (Hearing Order RH-3-86) - May 1987
7. HYDRO-QUÉBEC - In the matter of an application under the *National Energy Board Act* of Hydro-Québec for exports to the New England Utilities - (Hearing Order EH-1-87) - May 1987
8. INQUIRY INTO THE REGULATION OF ELECTRICITY EXPORTS - Report of an inquiry by a panel of the National Energy Board following a hearing in November and December 1986 - (Hearing Order EHR-1-86) - June 1987
9. INTERPROVINCIAL PIPE LINE LIMITED - Application dated 5 September 1986 for new tolls effective 1 January 1987 - (Hearing Order RH-4-86) - June 1987
10. INTERPROVINCIAL PIPE LINE LIMITED - Addendum - Application dated 5 September 1986 for new tolls effective 1 January 1987 - (Hearing Order RH-4-86) - June 1987
11. TRANS-NORTHERN PIPELINES INC. - Application dated 11 March 1987 for new tolls effective 1 February 1987 (Hearing Order RH-3-87) - July 1987

12. NATURAL GAS SURPLUS DETERMINATION REVIEW - In the matter of a review of natural gas surplus determination procedures - (Hearing Order GHR-1-87) - July 1987
13. THE MANITOBA HYDRO-ELECTRIC BOARD - In the matter of the application under the *National Energy Board Act* of The Manitoba Hydro-Electric Board - (Hearing Order EH-2-87) - August 1987
14. THE MANITOBA OIL AND GAS CORPORATION - Application dated 25 May 1987, as amended, for orders directing TransCanada PipeLines Limited to receive, transport and deliver natural gas and fixing tolls (Hearing Order MH-1-87) - September 1987
15. CHAMPLAIN PIPELINE PROJECT - Notice of Motion for orders to postpone a portion of the GH-2-87 hearing of an application by TransCanada PipeLines Limited (Hearing Order GH-2-87) - October 1987
16. WESTCOAST TRANSMISSION COMPANY LIMITED - Application dated 19 December 1986 for new tolls effective 1 January 1987 and 1 January 1988 (Hearing Order RH-2-87) - November 1987
17. TRANS QUÉBEC & MARITIMES PIPELINE INC. - Application dated 6 April 1987, as amended, for new tolls effective 1 January 1987 - (Hearing Order RH-4-87) - November 1987

Other Documents Issued in 1987

1. 1986 National Energy Board Annual Report - April 1987
2. Export of Petroleum Products in 1986 - April 1987
3. Exports of Crude Oil in 1986 - April 1987
4. Rules of Practice and Procedure - Revised Draft - April 1987
5. Canadian Electric Utilities - Analysis of Generation and Trends 1985
6. Improving Public Hearings - Letter dated 30 June 1987, supplemented by letter dated 16 December 1987.
7. Glossary of French-English Terminology Used at the National Energy Board - Office Consolidation - August 1987
8. Ontario Oil Supply Logistics 1986-2005 - Staff Report - September 1987
9. Crude Oil and Equivalent Supply-Demand, Medium Term Outlook 1987-1990
10. Breakdown of Regulatory Documents - November 1987

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Energy Overview

1. Canadian Energy Consumption^a (Petajoules)

	1983	1984	1985	1986	1987 ^e
Petroleum ^b	3160.1	3160.7	3135.2	3132.6	3212.0
Natural Gas ^c	1836.3	1983.9	2121.0	2079.6	2098.5
Hydro Electricity ^d	948.2	1021.7	1084.6	1100.9	1130.6
Nuclear Electricity ^d	591.8	632.0	714.2	875.3	884.6
Coal	1048.0	1167.4	1122.1	1140.0	1157.3
Renewable	487.1	475.6	516.7	542.7	540.2
TOTAL FOR CANADA	8071.7	8441.3	8693.8	8871.1	9023.2

a - Includes non-energy use, own use, and conversions and includes fuel for electricity export.

b - Includes LPGs.

c - Excludes reprocessing shrinkage and includes ethane.

d - Hydro and nuclear are converted at 3.6 PJ/TW.h and 12.1 PJ/TW.h respectively.

If the energy were converted using the heat content of 10.5 petajoules per terawatt hour, this assumes that the amount of primary energy associated with hydro and nuclear electricity is the amount which would be required if fossil fuels were used. The amount would be:

	1983	1984	1985	1986	1987 ^e
Hydro and Nuclear Electricity	3279.2	3528.4	3783.2	3970.5	4065.2

e - Estimate.

f - Includes energy used to produce steam.

Energy Overview

2. Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)

	1983	1984	1985	1986	1987
Supply					
Canadian Production ^a	230.2	243.5	248.8	249.0	259.8
Imports ^b	34.9	33.2	43.4	56.6	64.7
Total Supply ^d	265.1	276.7	292.2	305.6	323.9
Disposition					
Domestic ^b	224.1	227.7	221.1	216.7	226.5
Exports ^c	42.8	49.8	75.8	93.6	99.6
Total Disposition ^d	266.9	277.7	296.9	310.3	326.1

e - Estimate

Sources:

a - Source: NEB.

b - Source: NEB Form 153 - Refinery Receipts.

c - Source: NEB Form 306 - Crude Oil Exports.

d - Total Supply does not equal total disposition due to inventory changes, etc.

Energy Overview

3. Natural Gas Supply and Disposition (Billion Cubic Metres at 101.325 KPa and 15 Celsius)

	1983	1984	1985	1986	1987 ^e
Net Sales in Canada	43.8	47.6	50.1	48.1	45.5
Other Uses in Canada ^a	1.4	2.3	1.0	2.9	4.4
Exports	20.2	21.4	26.2	21.1	28.0
Total Deliveries ^b	65.4	71.3	77.3	72.1	77.9

a- Includes pipeline fuel and losses and other deliveries, less imports and inventory changes.

b- Marketable pipeline gas.

e- Estimate.

Energy Overview

4. Electricity Generation and Disposition (Terawatt Hours)

	1983	1984	1985	1986	1987
Total Generation	395.9	424.9	446.4	457.2	483.0 ^p
Imports ^a	.2	.3	.2	.2	.5
Total Supply	396.1	425.2	446.6	457.4	483.7 ^p
Domestic Demand	359.2	387.6	405.1	421.1	438.1 ^p
Exports ^a	36.9	37.6	41.5	35.3	45.4

a- Excludes exchanges between Canada and the United States.

p- Preliminary.

Oil

1. Certificates Issued During 1987 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres In Length

No Certificates were issued in 1987

Oil

2. Orders Issued During 1987 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres In Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Interprovincial Pipe Line Limited	XO-2-87	87-04-09	Various Pipe Replacements, Alberta and Saskatchewan	41 000 000
Petroleum Transmission Company	XO-3-87	87-06-03	12-km Interconnection with the Cochin System, Saskatchewan	1 000 000
Trans-Northern Pipelines Inc.	XO-1-87	87-03-20	Interconnection Facilities at Toronto Airport, Ontario	185 000

Oil

3. Orders Issued During 1987 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Cochin Pipe Lines Ltd.	XOM-10-87	87-06-10	Facilities to Convert Cavern E-3 from Ethane to Propane Storage	30 000
	XOM-11-87	87-06-24	Replacement of Corroded Piping	30 000
	XOM-12-87	87-07-02	Tie-In to Petroleum Transmission System (See XO-3-87)	70 000
	XOM-22-87	87-12-09	Additions and Modifications to Meter Station	22 000
Dome NGL Pipeline Ltd.	XOM-9-87	87-06-10	Tie-In	3 000
Interprovincial Pipe Line Limited	XOM-16-87	87-10-14	Modifications to Pumping Stations, Tankage, Meter Installation, Communications, Buildings and Equipment	73 000 000
	XOM-18-87	87-11-04	Additions to Pump Station, Communications, Furniture and Equipment	22 029 700
	XOM-20-87	87-11-25	System Capacity Additions	19 025 000
Interprovincial Pipe Line (NW) Ltd.	XOM-15-87	87-09-09	Pumping Stations, Communications and Equipment Replacements	648 000
Manito Pipelines Limited	XOM-1-87	87-01-22	Additional Pump Station Piping	22 000
	XOM-8-87	87-05-28	Tank and Line Improvements	524 000
	XOM-17-87	87-10-21	Modifications and Replacements	57 000
Montreal Pipe Line Limited	XOM-2-87	87-02-18	Replacement of Building Roofs, Office Furniture and Equipment	80 900
Petroleum Transmission Company	XOM-4-87	87-02-25	Remotely Operated Valves	93 300
Sun Pipe Line Company	XOM-19-87	87-11-04	Replacement of Interchange Unit Valve	50 000
Trans Mountain Pipe Line Company Ltd.	XOM-3-87	87-02-12	Replacement of Trunk and Feeder Lines	781 000
	XOM-5-87	87-03-11	Two Floating Roof Tanks	9 350 000
	XOM-6-87	87-02-25	Pump Station Construction	671 000
	XOM-21-87	87-12-09	Additions and Modifications to Pump Station and Terminals	14 500 000
Trans-Northern Pipelines Inc.	XOM-7-87	87-04-08	Replacement of Pipelines, Stations, Office Furniture Equipment and Vehicles	1 541 000
	XOM-13-87	87-07-10	Modifications and Additions to Pump Stations	205 000
Wascana Pipe Line Limited	XOM-14-87	87-08-05	Scraper Trap and Piping	26 000

Oil**4.Exports of Petroleum Products – 1987 (Cubic Metres)**

Month	Motor Gasoline	Middle Distillate	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total^a
January	165 009	336 294	65 470	140 484	–	707 257
February	93 385	261 203	98 246	68 741	–	521 575
March	168 021	375 116	28 974	52 442	–	624 553
April	220 006	200 158	79 812	49 927	–	549 903
May	130 841	274 208	108 802	137 522	14 812	666 185
June	168 906	278 462	102 975	75 895	–	626 238
July	124 854	280 183	57 173	157 828	–	620 038
August	180 411	375 870	59 545	101 556	17 883	735 265
September	144 849	236 952	74 674	132 586	15 870	604 931
October	252 854	424 202	90 134	172 804	82 487	1 022 481
November	116 561	294 301	29 065	100 562	62 653	603 142
December	205 605	232 565	143 970	196 404	41 027	819 571
Total (m³)	1 971 302	3 569 515	938 840	1 386 751	234 732	8 101 139
m³/d	5 401	9 779	2 572	3 799	643	22 195

a– Excludes propane, butane, lubricants, greases, asphalt, petrochemicals etc.

Oil

5. Exports of Canadian Crude and Equivalent - 1986 and 1987 (Cubic Metres)

	1986		1987	
	Total	Daily Average	Total	Daily Average
Amoco Production Company	1 398 999	3 832	2 240 498	6 138
Ashland Oil Inc.	578 000	1 583	1 563 294	4 283
Border Fuel Supply	2 476	6	-	-
Cenex	1 168 332	3 200	1 072 939	2 940
CGS Energy Inc.	23 922	65	-	-
Challenger Petroleum	25 000	68	-	-
Chinese Petroleum Corporation	-	-	113 367	310
Cibro Sales Corporation	-	-	35 587	98
Clark Oil & Refining Corporation	2 111 949	5 786	3 259 617	8 930
Conoco Inc.	1 643 295	4 502	1 735 076	4 754
Crystal Refining	23 429	64	24 523	67
Exxon Company, U.S.A.	822 444	2 252	1 511 229	4 140
Frontier Oil and Refining Co.	-	-	40 482	111
Gotco N.V.	71 706	196	31 980	88
Hill Petroleum Company	365 905	1 002	-	-
Koch Refining Company	8 494 171	23 271	8 602 267	23 568
Laketon Refining Corp.	203 123	556	383 725	1 051
Lyondell Petrochem Company	42 795	117	-	-
Marathon Petroleum Company	367 560	1 007	669 711	1 835
Mitsui and Company(Canada) Ltd.	50 414	138	-	-
Mobil Oil Corporation	3 624 963	9 931	3 776 645	10 347
Montana Refining Company	56 637	155	165 113	452
Murphy Oil U.S.A. Inc.	389 469	1 066	398 346	1 091
NOCO Energy Corporation	252 015	690	290 175	795
Pacific Refining Company	-	-	6 398	18
Permian Corporation	2 664	7	-	-
Pecten Trading Company	-	-	28 819	79
Phibro Energy Inc.	98 817	270	-	-
Shell Oil Company	737 775	2 021	250 510	686
Sohio Supply Company	222 465	609	271 878	745
Sun Refining and Marketing Co.	2 238 270	6 132	1 926 118	5 277
Sun International	97 991	268	-	-
Sun Oil Trading Company	44 010	120	-	-
Texaco Trader International	53 832	147	-	-
Texaco U.S.A.	490 678	1 343	358 930	983
Total Petroleum, Inc.	96 317	263	86 024	236
Transworld Oil Limited	510 349	1 394	76 005	208
Union Oil Company of California	3 845 549	10 536	4 426 249	12 127
United Refining Company	3 037 128	8 320	2 804 570	7 684
UPG Falco	2 148	5	-	-
U.S. Oil & Refining Co.	971 861	2 660	192 911	529
TOTAL	34 166 458	93 582	36 342 986	99 570

Oil

6. Exports of Canadian Crude and Equivalent (Cubic metres per day)

	1983	1984	1985	1986	1987
Light Crude Oil and Equivalent:	11 057	13 857	33 416	41 281	44 213
Heavy Crude Oil:	31 775	36 040	41 901	52 301	55 357
Total	42 832	49 897	75 317	93 582	99 570

Gas

1. Certificates Issued During 1987 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were issued in 1987

Gas

2. Orders Issued During 1987 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
A.P.R. Pipeline Company Limited	XG-5-87	87-07-22	Construction of two 6.9-km, 168.3-mm Outside Diameter Lines and the Operation of two existing 168.3-mm Outside Diameter River Crossing Pipelines, St. Clair River, Ontario	1 500 000
Foothills Pipe Lines (Yukon) Ltd.	XG-11-87	87-11-25	Crane Lake Meter Station, Saskatchewan	639 000
Many Islands Pipe Lines (Canada) Limited	XG-9-87	87-10-14	Nova - SaskPower Tie-In, Alberta and Saskatchewan	4 000
	XG-10-87	87-11-12	Tap-Off and Lateral on Alberta-Unity Transmission Line, Saskatchewan	7 000
TransCanada PipeLines Limited	XG-2-87	87-04-29	New 'B' Plant with two Reciprocating Compressor Packages and 508-mm Outside Diameter, 6.9-km Loop, Quebec	13 680 000
	XG-6-87	87-07-29	Thornton Sales Meter Station, Ontario	423 000
	XG-7-87	87-07-29	L'Acadie Sales Tap, Quebec	50 000
Trans Québec & Maritimes Pipeline Inc.	XG-3-87	87-05-13	Additional Facilities at Saint-Maurice Meter Station, Quebec	285 000
Westcoast Transmission Company	XG-1-87	87-03-25	Monias Booster Station No. 17, British Columbia	4 600 000
	XG-4-87	87-06-30	Expansion of Sikanni Gas Processing Plant, British Columbia	3 220 000
	XG-8-87	87-09-03	Fibreco Metering Facilities at Meter Station No. 43 Taylor, British Columbia	119 000

Gas**3. Orders Issued During 1987 Approving Modifications and Additions to Existing Gas Pipeline Facilities**

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Alberta Natural Gas Company Ltd.	XGM-5-87	87-03-04	Replacement of Compressor Driver	1 425 000
	XGM-14-87	87-07-10	Sales Tap	10 000
Consumers' Gas (Canada) Limited	XGM-17-87	87-08-12	Gas Take-off Facilities and Shut-off Valves	73 000
	XGM-23-87	87-10-21	Pipeline Tap	500
Foothills Pipe Lines (Yukon) Ltd.	XGM-4-87	87-03-04	Pipe Modifications	543 700
	XGM-20-87	87-09-30	Measurement System	224 400
	XGM-24-87	87-10-28	Remotely Operated Valve	12 100
ICG Transmission Holdings Ltd.	XGM-7-87	87-04-01	Turbine Meter	10 000
	XGM-11-87	87-06-10	Upgrading Station	65 000
	XGM-12-87	87-06-10	Upgrading Station	10 000
TransCanada PipeLines Limited	XGM-1-87	87-01-22	Population Density Pipe Replacements	17 000 000
	XGM-8-87	87-05-13	Supplementary Pipe Replacements	2 361 000
	XGM-15-87	87-07-15	Station Relocation	2 500 000
Trans Québec & Maritimes Pipeline Inc.	XGM-2-87	87-01-14	Transmission and General Plant Additions	174 300
	XGM-10-87	87-06-10	General Plant Additions	135 469
Westcoast Transmission Company Limited	XGM-3-87	87-02-12	Pipe Replacements, Equipment Upgrade, Office Services	44 915 000
	XGM-6-87	87-04-29	Pipe Replacements, Valves, Vent Stacks	3 991 000
	XGM-9-87	87-04-10	Gas Turbine Replacement	8 970 000
	XGM-13-87	87-06-17	Aircraft Hanger, Station and Pipeline Modification	1 246 000
	XGM-16-87	87-08-05	Upgrade and Replacement of Gate Flare, Valves, Pumps, Office Services	854 000
	XGM-18-87	87-09-23	Pipe Replacement Analyzer, Mobile Equipment	310 000
	XGM-19-87	87-09-23	Pipe Replacement and Revetment Construction	165 000
	XGM-21-87	87-10-08	Pipe and Equipment Replacement	23 425 000
	XGM-22-87	87-10-08	Pipe Replacement, Revetment Construction and Mobile Equipment	805 000
	XGM-25-87	87-12-10	Truck Purchase	19 000
	XGM-26-87	87-12-23	Upgrade of Heaters and Meter Station	204 000

Gas

4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Alberta and Southern Gas Co. Ltd.	GL-99	Kingsgate, B.C.	86-12-18	87-10-31	31 897.2	9 340.9	77 626.5
			87-11-01	94-10-31	31 897.2	10 580.4	
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	GL-105	Iroquois, Ont.	88-11-01	2003-10-31	495.7	180.9	2 714.0
Alberta Northeast Gas Ltd. and ATCOR Ltd.	GL-104	Iroquois, Ont.	88-11-01	2003-10-31	991.5	361.9	5 428.0
Alberta Northeast Gas Ltd. and ProGas Limited	GL-103	Iroquois, Ont.	88-11-01	2003-10-31	1 869.6	682.4	10 236.0
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	GL-102	Iroquois, Ont.	88-11-01	2003-10-31	6 614.6	2 414.0	42 646.0
		Niagara Falls, Ont.	88-11-01	2003-10-31	1 175.6	429.1	42 646.0
Canadian-Montana Pipe Line Company	GL-17	Aden/Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	66-11-01	67-10-31	339.9	103.4	4 652.8
			67-11-01	89-10-31	679.9	206.8	
	GL-25	Aden/Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	68-11-01	69-10-31	339.9	103.4	4 890.8
			69-11-01	91-10-31	679.9	206.8	
			91-11-01	93-10-31	390.9	119.0	
	GL-52	Aden, Alta., Emerson, Man. & Niagara Falls, Ont.	80-01-01	82-12-31	1 416.4	283.3	2 266.4
			83-01-01	83-03-31	1 416.4	70.0	
			83-04-01	83-12-31	1 133.1	213.3	
			84-01-01	87-12-31	1 133.1	283.3	
	GL-72	Aden, Alta.	88-01-01	88-10-31	1 133.1	236.1	1 085.7
			88-11-01	90-10-31	1 133.1	283.3	
			90-11-01	91-10-31	754.6	188.7	
			91-11-01	92-10-31	377.3	94.3	
Columbia Gas Development of Canada Ltd.	GL-54	Huntingdon, B.C.	79-05-01	93-12-31	30.0	10.3	105.0
			80-01-01	81-10-31	1 110.4	368.3	2 394.0
			81-11-01	81-12-31	1 450.0	70.8	
			82-01-01	84-12-31	1 450.0	423.5	
			85-01-01	85-12-31	832.8	276.2	
			86-01-01	86-12-31	555.2	184.2	
			87-01-01	87-12-31	277.6	92.1	
	GL-54	Monchy, Sask.	82-11-01	87-10-31	283.3	92.1	2 394.0
Consolidated Natural Gas Limited	GL-44 ^a	Emerson, Man.	72-03-15	92-10-31	4 249.2	1 274.8	18 951.3
	GL-75	Emerson, Man. & Monchy, Sask. combined maximum	87-11-01	89-10-31	3 824.3	1 396.0	2 792.0

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Consolidated Natural Gas Limited (Cont'd)		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	87-11-01	89-10-31	1 912.2	698.0	1 396.0
ICG Transmission Holdings Ltd.	GL-28	Sprague, Man.	70-11-01	95-10-31	80.3	9.5	229.0
	GL-29	Fort Frances, Ont.	70-11-01	95-10-31	915.6	218.5	5 462.2
	GL-30 ^b	Sprague, Man.	70-11-01	95-10-31	1 321.8	344.0	8 498.1
KannGaz Producers Ltd.	GL-77	Niagara Falls, Ont.	87-11-01	96-10-31	3 540.0	1 292.1	13 567.0
			96-11-01	97-10-31	2 655.0	969.1	
			97-11-01	98-10-31	1 770.0	646.0	
			98-11-01	99-10-31	885.0	323.0	
Niagara Gas Transmission Limited	GL-78	Cornwall, Ont.	87-11-01	90-10-31	1 200.0	275.0	1 099.7
			90-11-01	91-10-31	799.2	183.1	
			91-11-01	92-10-31	399.2	91.6	
Pan-Alberta Gas Ltd.	GL-95	Emerson, Man. & Niagara Falls, Ont. combined maximum	87-11-01	96-10-31	4 332.5	1 581.4	16 604.7
			96-11-01	97-10-31	3 249.4	1 186.0	
			97-11-01	98-10-31	2 166.2	790.7	
			98-11-01	99-10-31	1 083.1	395.4	
		Maximum permitted at Niagara Falls, Ont. as part of combined Emerson/Niagara Falls volumes	87-11-19	96-10-31	1 442.7	526.6	
			96-11-01	97-10-31	1 082.1	394.9	
			97-11-01	98-10-31	721.3	263.3	
			98-11-01	99-10-31	360.7	131.7	
	GL-96	Kingsgate, B.C.	84-12-20	85-10-31	7 478.6	2 155.9	23 763.6
			85-11-01	94-10-31	7 478.6	2 488.3	
			94-11-01	95-10-31	4 980.7	1 657.2	
			95-11-01	96-10-31	2 490.7	828.6	
	GL-97	Monchy, Sask.	84-12-20	85-10-31	24 928.5	7 582.8	75 296.7
			85-11-01	94-10-31	24 928.5	8 294.4	
			94-11-01	95-10-31	16 602.4	5 524.1	
			95-11-01	96-10-31	8 301.2	2 762.0	
ProGas Limited	GL-80	Niagara Falls, Ont.	87-11-01	96-10-31	1 420.0	518.3	5 442.1
			96-11-01	97-10-31	1 065.0	388.7	
			97-11-01	98-10-31	710.0	259.1	
			98-11-01	99-10-31	355.0	129.6	
	GL-81	Emerson, Man.	87-11-01	96-10-31	5 270.0	1 923.5	20 196.7
			96-11-01	97-10-31	3 952.5	1 442.6	
			97-11-01	98-10-31	2 635.0	961.7	
			98-11-01	99-10-31	1 317.5	480.9	

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	(10 ³ m ³)	Daily (10 ⁶ m ³)	Annual Term (10 ⁶ m ³)
ProGas Limited (Cont'd)	GL-98	Emerson, Man. & Monchy, Sask. combined maximum	86-08-13	86-10-31	9 440.9	2 583.2	12 177.8
			86-11-01	87-10-31	7 552.7	2 480.0	
			87-11-01	90-10-31	9 440.9	3 100.0	
			90-11-01	91-10-31	7 552.7	2 480.0	
			91-11-01	92-10-31	5 664.5	1 860.0	
			92-11-01	93-10-31	3 776.4	1 240.0	
			93-11-01	94-10-31	1 888.2	620.0	
		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	86-08-13	86-10-31	6 797.4	2 480.0	10 988.5
			86-11-01	87-10-31	3 776.3	1 240.0	
			87-11-01	90-10-31	4 720.4	1 550.0	
			90-11-01	91-10-31	3 776.3	1 240.0	
			91-11-01	92-10-31	2 832.2	930.0	
			92-11-01	93-10-31	2 125.0	698.0	
			93-11-01	94-10-31	1 888.2	620.0	
	GL-101	Niagara Falls, Ont.	89-05-01	89-10-31	1 420.0	260.6	10 340.0
			89-11-01	92-10-31	1 420.0	517.0	
			92-11-01	2009-10-31	1 420.0	517.0	
Shell Canada Limited	GL-100	Highwater, Que.	87-11-01	99-03-31	1 110.0	300.0	7 100.0
		Niagara Falls, Ont.	87-11-01	99-03-31	1 390.0	400.0	
Sulpetro Limited	GL-82	Niagara Falls, Ont.	84-02-05	84-10-31	2 125.0	340.0	4 653.7
			84-11-01	88-10-31	2 125.0	775.6	
			88-11-01	89-10-31	2 125.0	745.9	
			89-11-01	90-10-31	850.0	310.2	
			90-11-01	91-10-31	425.0	155.1	
Tenneco LNG Inc.	GL-49 ^c	St. Stephen, N.B.	c	c	32 295.0	11 820.0	N/S
TransCanada PipeLines Limited	GL-18	Emerson, Man. & Niagara Falls, Ont.	65-11-01	66-10-31	708.2	1 226.6	33 993.4
			66-11-01	89-10-31	4 277.5	1 481.5	
	GL-19	Philipsburg, Que.	65-11-01	82-10-31	600.6	184.1	3 059.4
			82-11-01	83-10-31	634.5	184.1	
			83-11-01	84-10-31	657.2	184.1	
			84-11-01	86-10-31	702.5	184.1	
			86-11-01	87-10-31	793.2	184.1	
			87-11-01	88-10-31	849.8	184.1	
			88-11-01	89-10-31	906.5	184.1	
	GL-20 ^d	Emerson, Man.	67-11-01	91-10-31	2 662.8	909.3	21 670.8
	GL-21	Emerson, Man.	68-11-05	91-10-31	N/S	7 019.1	169 967.0
	GL-37	Emerson, Man.	70-11-01	90-10-31	5 546.6	2 030.1	40 601.0
	GL-38	Emerson, Man.	70-11-01	90-10-31	1 416.4	518.4	10 368.0
	GL-39	Emerson, Man.	70-11-01	90-10-31	204.0	74.6	1 493.0

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
TransCanada PipeLines Limited (Cont'd)	GL-42 ^d	Emerson, Man.	71-04-15	71-10-31	N/S	232.8	60 316.5
			71-11-01	94-10-31	N/S	2 612.3	
	GL-43	Emerson, Man.	71-11-01	91-10-31	N/S	481.6	9 631.5
	GL-83	Niagara Falls, Ont.	84-11-01	86-10-31	1 133.1	414.0	9 350.2
			86-11-01	94-10-31	2 620.3	959.0	
			94-11-01	95-10-31	1 521.3	556.8	
			95-11-01	96-10-31	774.3	283.4	
	GL-84	Niagara Falls, Ont.	87-11-01	88-10-31	142.0	51.8	2 378.0
			88-11-01	97-10-31	708.0	258.4	
	GL-86	Emerson, Man.	87-11-01	90-10-31	2 832.8	1 034.0	10 886.4
			90-11-01	91-10-31	2 832.8	1 036.8	
			91-11-01	94-10-31	2 832.8	1 034.0	
			94-11-01	95-10-31	2 832.8	1 036.8	
			95-11-01	96-10-31	2 832.8	1 034.0	
			96-11-01	97-10-31	2 188.7	798.9	
			97-11-01	98-10-31	1 416.4	517.0	
			98-11-01	99-10-31	708.2	259.2	
	GL-87	Emerson, Man.	87-11-01	90-10-31	2 832.8	1 034.0	10 886.4
			90-11-01	91-10-31	2 832.8	1 036.8	
			91-11-01	94-10-31	2 832.8	1 034.0	
			94-11-01	95-10-31	2 832.8	1 036.8	
			95-11-01	96-10-31	2 832.8	1 034.0	
			96-11-01	97-10-31	2 188.7	798.9	
			97-11-01	98-10-31	1 416.4	517.0	
			98-11-01	99-10-31	708.2	259.2	
	GL-89	Emerson, Man.	84-11-01	85-10-31	6 317.1	524.1	12 960.8
			85-11-01	86-10-31	6 317.1	1 957.3	
			86-11-01	90-10-31	6 317.1	2 096.3	
			90-11-01	91-10-31	4 207.2	1 396.1	
			91-11-01	92-10-31	2 103.6	698.1	
	GL-90	Niagara Falls, Ont.	87-11-01	88-10-31	1 416.4	518.4	5 443.2
			88-11-01	91-10-31	1 416.4	517.0	
			91-11-01	92-10-31	1 416.4	518.4	
			92-11-01	95-10-31	1 416.4	517.0	
			95-11-01	96-10-31	1 416.4	518.4	
			96-11-01	97-10-31	1 091.3	398.3	
			97-11-01	98-10-31	708.2	258.5	
			98-11-01	99-10-31	354.1	129.2	
Transcontinental Gas Pipe Line Corporation	GL-91 ^e	Niagara Falls, Ont.	84-11-01	93-10-31	8 498.4	1 555.2	16 329.6
			93-11-01	94-10-31	6 373.8	1 166.4	
			94-11-01	95-10-31	4 249.2	777.6	
			95-11-01	96-10-31	2 124.6	388.8	
Union Gas Limited	GL-92	Windsor, Ont.	85-11-01	90-10-31	1 100.0	284.0	1 703.7
			90-11-01	91-10-31	732.6	189.1	
			91-11-01	92-10-31	366.3	94.6	

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1987

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Westcoast Transmission Company Limited	GL-41	Huntingdon/ Kingsgate, B.C. & Monchy, Sask. combined maximum	71-11-01	72-10-31	20 773.9	7 223.1	143 495.2
			72-11-01	80-10-31	22 922.9	7 970.3	
			80-11-01	82-10-31	24 622.6	7 970.3	
			82-11-01	83-03-31	24 622.6	3 299.7	
			83-04-01	83-10-31	26 039.0	4 706.2	
			83-11-01	89-10-31	26 039.0	8 067.8	
		Maximum permitted at Kingsgate, B.C. as part of combined Huntingdon/Kingsgate/Monchy volumes	73-11-01	79-10-31	22 922.9	7 970.3	
			83-04-01	89-10-31	2 832.8	N/S	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/Kingsgate/Monchy volumes	83-04-01	89-10-31	1 416.4	517.0	
	GL-93	Huntingdon, B.C.	89-11-01	92-10-31	8 498.3	3 101.9	13 958.6
			92-11-01	93-10-31	6 373.3	2 326.4	
			93-11-01	94-10-31	4 249.1	1 550.9	
			94-11-01	95-10-31	2 124.6	775.5	
	GL-94	Huntingdon/ Kingsgate, B.C. & Monchy, Sask. combined maximum	89-11-01	90-10-31	13 731.0	4 637.1	9 269.5
			90-11-01	91-10-31	9 144.8	3 088.3	
			91-11-01	92-10-31	4 572.4	1 544.1	
		Maximum permitted at Kingsgate, B.C. as part of combined Huntingdon/Kingsgate/Monchy volumes	89-11-01	90-10-31	2 832.8	N/S	
			90-11-01	91-10-31	2 832.8	N/S	
			91-11-01	92-10-31	2 832.8	N/S	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/Kingsgate/Monchy volumes	89-11-01	90-10-31	1 416.4	517.0	
			90-11-01	91-10-31	1 416.4	517.0	
			91-11-01	92-10-31	1 416.4	517.0	

- a- This licence authorizes the export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.
- b- This licence authorizes an export near Sprague, Manitoba for import near Rainy River, Ont.
- c- This licence is to commence on the date of initial delivery and expire 20 1/2 years after, or a total term not exceeding 25 years. The liquefied natural gas exported will have been previously imported by the licensee near Saint John, New Brunswick pursuant to Licence GLI-7.
- d- This licence authorizes an export near Emerson, Manitoba for import near Sault Ste-Marie and Sarnia, Ontario, to serve the eastern Canadian market.
- e- This licence authorizes the export of natural gas previously imported and stored in Canada.
- N/S Not Specified.

Gas

5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1987

Importer	Licence or Order Number	Point of Import	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Border Utilities Ltd.	GO-8-86	Coutts, Alta.	86-01-28	2005-12-31	30.0	N/S	N/S
Consolidated Natural Gas Limited	GLI-5 ^a	Willow Creek, Sask.	72-03-15	92-10-31	4 249.2	1 274.8	18 951.3
ICG Transmission Holdings Ltd.	GL-30 ^b	Rainy River, Ont.	70-11-01	95-10-31	1 321.8	344.0	8 498.1
Tenneco LNG Inc.	GLI-7 ^c	Saint John, N.B.	c	c	N/S	418.7PJ	8 373.6PJ
TransCanada PipeLines Limited	GL-21 ^b	Sault Ste-Marie and Sarnia, Ont.	68-11-05	91-10-31	N/S	7 019.1	169 967.0
	GL-42 ^d	Sault Ste-Marie and Sarnia, Ont.	71-04-15 71-11-01	71-10-31 94-10-31	N/S N/S	232.8 2 612.3	60 316.5
Transcontinental Gas Pipe Line Corporation	GL-91 ^e	Sarnia, Ont.	84-11-01	93-10-31	4 249.2	1 555.2	16 329.6
			93-11-01	94-10-31	3 186.9	1 166.4	
			94-11-01	95-10-31	2 124.6	777.6	
			95-11-01	96-10-31	1 062.3	388.8	

- a- This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Manitoba, pursuant to Licence GL-44.
- b- This licence authorizes an import of natural gas which the licensee has exported near Sprague, Man.
- c- This licence is to commence on the date of initial delivery and expire 20 1/2 years after, or a total term not exceeding 25 years. This liquefied natural gas hereby imported is to be subsequently exported near St. Stephen, New Brunswick, pursuant to Licence GL-49.
- d- This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Manitoba. This natural gas serves Canadian markets.
- e- This licence authorizes an import of natural gas for storage in Canada and subsequently exported to the United States.
- N/S Not Specified.

Gas

6. Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
PROPANE							
Amoco Canada Petroleum Company Ltd. (Export)	GL-32 (AO-5)	Can/US Border ^a	–	71-01-01	95-12-31	–	4 281 799
				71-01-01	72-12-31	92 698	
				73-01-01	73-12-31	569 761	
				74-01-01	74-12-31	519 682	
				75-01-01	75-12-31	506 190	
				76-01-01	76-12-31	483 571	
				77-01-01	77-12-31	456 825	
				78-01-01	93-12-31	92 698	
				94-01-01	94-12-31	77 206	
				95-01-01	95-12-31		
Dome Petroleum Limited (Export)	GL-31 (AO-7)	Can/US Border ^a	–	71-01-01	95-12-31	–	9 757 486
				71-01-01	72-12-31	133 254	
				73-01-01	73-12-31	924 999	
				74-01-01	74-12-31	870 078	
				75-01-01	75-12-31	847 301	
				76-01-01	76-12-31	812 936	
				77-01-01	77-12-31	775 793	
				78-01-01	78-12-31	744 761	
				79-01-01	79-12-31	716 983	
				80-01-01	80-12-31	688 571	
				81-01-01	81-12-31	656 190	
				82-01-01	82-12-31	620 476	
				83-01-01	86-12-31	133 254	
				87-01-01	87-12-31	143 809	
				88-01-01	88-12-31	193 016	
				89-01-01	89-12-31	196 984	
				90-01-01	90-12-31	169 047	
				91-01-01	91-12-31	165 873	
				92-01-01	92-12-31	165 079	
				93-01-01	93-12-31	162 098	
				94-01-01	94-12-31	103 968	
PanCanadian Gas Products Limited (Export)	GL-34 (AO-6)	Can/US Border ^a	–	71-01-01	87-12-31	–	2 389 521
				71-01-01	72-12-31	63 730	
				73-01-01	73-12-31	355 238	
				74-01-01	74-12-31	350 396	
				75-01-01	75-12-31	341 111	
				76-01-01	76-12-31	329 365	
				77-01-01	77-12-31	318 968	
				78-01-01	85-12-31	63 730	
				86-01-01	86-12-31	53 175	
				87-01-01	87-12-31	3 968	
Amoco Canada Petroleum Company Ltd. (Export/Import)	EPR-918-79 ^c	Can/US Border ^a	Can/US Border ^d	79-09-06	96-01-31	N/S	N/S
Dome Petroleum Limited (Export/Import)	EPR-917-79 ^c	Can/US Border ^a	Can/US Border ^d	79-09-06	96-01-31	N/S	N/S

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Annual Volumes (m ³)	Term Volumes (m ³)
		Export	Import	From	To		
Dome Petroleum Limited (Import/Export)	EPR-930-84 (AO-2)	Sarnia, Ont.	Can/US Border ^d	84-04-01	92-04-15	-	
				84-04-01	84-12-31	458 335	
				85-01-01	85-12-31	608 335	
				86-01-01	86-12-31	608 335	
				87-01-01	87-12-31	608 335	
				88-01-01	88-12-31	608 335	
				89-01-01	89-12-31	608 335	
				90-01-01	90-12-31	608 335	
				91-01-01	91-12-31	608 335	
				92-01-01	92-04-15	153 100	
Imperial Oil Limited (Export/Import)	EPR-922-80 ^b	Gretna, Man.	Sarnia, Ont.	80-09-01	90-08-31	N/S	N/S
PanCanadian Gas Products Limited (Export/Import)	EPR-919-79 ^c	Can/US Border ^a	Can/US Border ^d	79-09-06	91-01-31	N/S	N/S
BUTANES							
Amoco Canada Petroleum Company Ltd. (Export/Import)	EBU-133-74 ^c (AO-2)	Gretna, Man.	Sarnia, Ont.	74-07-01	95-12-31	-	7 914 026
				74-07-01	74-12-31	236 214	
				75-01-01	75-12-31	521 326	
				76-01-01	76-12-31	661 936	
				77-01-01	77-12-31	653 789	
				78-01-01	78-12-31	659 681	
				79-01-01	79-12-31	618 088	
				80-01-01	80-12-31	575 893	
				81-01-01	81-12-31	540 176	
				82-01-01	82-12-31	488 674	
				83-01-01	83-12-31	423 848	
				84-01-01	84-12-31	374 315	
				85-01-01	85-12-31	- c	
				86-01-01	86-12-31	-	
				87-01-01	87-12-31	-	
				88-01-01	88-12-31	-	
				89-01-01	89-12-31	-	
				90-01-01	90-12-31	-	
				91-01-01	91-12-31	-	
				92-01-01	92-12-31	-	
				93-01-01	93-12-31	-	
				94-01-01	94-12-31	-	
				95-01-01	95-12-31	-	
Dome Petroleum Limited (Export/Import)	EBU-132-74 ^c (AO-3)	Gretna, Man.	Sarnia, Ont.	74-07-01	95-12-31	-	9 357 529
				74-07-01	74-12-31	309 537	
				75-01-01	75-12-31	513 353	
				76-01-01	76-12-31	611 593	
				77-01-01	77-12-31	599 762	
				78-01-01	78-12-31	635 462	
				79-01-01	79-12-31	603 129	
				80-01-01	80-12-31	580 324	
				81-01-01	81-12-31	556 375	
				82-01-01	82-12-31	532 601	
				83-01-01	83-12-31	502 284	

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
Dome Petroleum Limited (Export/ Import) (Cont'd)				84-01-01 85-01-01 86-01-01 87-01-01 88-01-01 89-01-01 90-01-01 91-01-01 92-01-01 93-01-01 94-01-01 95-01-01	84-12-31 85-12-31 86-12-31 87-12-31 88-12-31 89-12-31 90-12-31 91-12-31 92-12-31 93-12-31 94-12-31 95-12-31	452 809 - b - - - - - - - - - - -	
Imperial Oil Limited (Export/Import)	EBU-911-80 ^c	Gretna, Man.	Sarnia, Ont.	80-09-01	90-08-31	N/S	N/S
PanCanadian Gas Products Limited (Export/Import)	EBU-134-74 ^c (AO-1)	Gretna, Man.	Sarnia, Ont.	74-07-01 74-07-01 75-01-01 76-01-01 84-01-01	90-12-31 74-12-31 75-12-31 83-12-31 90-12-31	- 167 570 212 599 213 822 240 550	3 774 595
Texaco Canada Inc. (Export/Import)	EBU-916-82	Gretna, Man.	Sarnia, Ont.	82-07-01	92-06-30	N/S	N/S
Dome Petroleum Limited (Import/ Export)	EBU-929-84 (AO-2)	Sarnia, Ont.	Can/US Border ^f	84-04-01 84-04-01 85-01-01 92-01-01	92-04-15 84-12-31 91-12-31 92-04-15	 340 650 452 135 128 825	-
ETHANE							
Dome Petroleum Limited (Export)	GL-51 ^{g,h} (AO-8)	Export-Elmore, Sask. Re-Export - Windsor, Ont.	Windsor, Ont.	79-06-21 79-06-21 80-01-01 81-01-01 82-01-01 83-01-01 84-01-01 85-01-01 86-01-01 87-01-01 88-01-01 89-01-01 90-01-01 91-01-01 92-01-01 93-01-01	93-12-31 79-12-31 80-12-31 81-12-31 82-12-31 83-12-31 84-12-31 85-12-31 86-12-31 87-12-31 88-12-31 89-12-31 90-12-31 91-12-31 92-12-31 93-12-31	- 1 287 000 1 090 000 935 000 1 114 000 1 241 000 1 424 000 2 000 000 2 731 000 2 304 000 1 891 000 1 301 000 765 000 602 000 280 000 104 000	19 069 000

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1987

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (Kilograms)	Term (Kilograms)
ETHYLENE							
Dow Chemical of Canada Limited (Export)	EYL-1-76 (AO-2) ¹	Elmore, Sask. Sarnia, Ont. Windsor, Ont.	Sarnia, Ont. Windsor, Ont.	80-01-01	89-12-31	1 587 573 340	1 587 573 400
Dow Chemical of Canada Limited (Export/Import)	EYL-2-76 (AO-2) ¹	Elmore, Sask.	Windsor, Ont.	78-01-01	97-12-31	181 438 810	

- a - For each licence or order the Canada/US Border export points include ~~one or more~~ of the following ports: Elmore, Sask., Gretna, Man., Sarnia and Windsor, Ont.
- b - This order authorizes propane exports at Gretna, Man. for subsequent import at Sarnia, Ont.
- c - This order authorizes propane exports at any point on the Canada/US Border for subsequent import of the same propane within 30 days after the day of export.
- d - For each order the Canada/US Border import points include either Sarnia or Windsor, Ont. or both.
- e - This order authorizes export of butanes at Gretna, Man. for subsequent import at Sarnia, Ont.
- f - This order authorizes imports of butanes at Sarnia and Windsor, Ont., for subsequent export at any point along the Canada/US border (namely Sarnia and Windsor, Ont.).
- g - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.
- h - Authorized exports of ethane in each year during the period 1982-01-01 to 1985-12-31 shall be reduced by the equivalent quantity of "make-up" volumes exported under Licence GL-47 which is in excess of 392 728 m³.
- i - This is an export licence which authorizes the export of ethylene at Elmore, Sask., and at Sarnia and Windsor, Ontario. All or a portion of the quantity of ethylene exported at Elmore, Sask., may be imported at Sarnia and Windsor, Ontario for subsequent re-export at Sarnia and Windsor, Ont.
- j - This order authorizes an export of ethylene at Elmore, Sask., for subsequent import at Windsor, Ont.

Gas

7. Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Alberta and Southern Gas Co. Ltd.	GL-3	2 471.0	-	106 288.0
	GL-16	464.8	-	32 063.8
	GL-24	439.8	-	28 553.1
	GL-35	857.4	-	27 936.0
	GL-67	221.8	-	221.8
	GL-99	443.0	10 419.7	10 862.6
	GO-31-86	232.3	-	232.3
	GO-62-86	1 820.0	-	1 820.0
Amoco Canada Petroleum Company Ltd.	GO-10-85	51.3	7.3	75.9
	GO-104-86	.0	12.4	12.4
Bonanza Resources Ltd.	GO-58-86	.0	15.0	15.0
	GO-59-86	.0	17.0	17.0
Bonus Gas Processors Corp.	GO-78-86	.0	65.2	65.2
Brymore Gas (Canada) Inc.	GO-80-86	2.6	9.7	12.3
Canadian Hydrocarbons Limited	GO-14-87	-	92.7	92.7
Canadian-Montana Pipe Line Company	GL-5	.0	.0	6 386.4
	GL-17	.0	.0	3 035.3
	GL-25	.0	.0	3 516.3
	GL-36	.0	.0	1 183.2
	GL-52	211.7	187.8	1 155.8
	GO-3-79	4.3	4.1	23.1
Canterra Energy Ltd.	GO-10-87	-	8.9	8.9
Consolidated Natural Gas Limited	GL-44 ^a	265.0	306.0	6 144.9
	GL-61	365.3	429.6	5 205.0
	GL-75	-	186.1	186.1
	GO-3-86	214.3	-	214.3
	GO-4-86	68.2	-	68.2
	GO-89-86	68.3	142.2	210.4
	GO-92-86	72.7	137.9	210.6
Czar Resources Ltd.	GO-9-85	7.0	-	13.3
	GO-30-86	29.5	46.6	76.0
Dome Petroleum Limited	GO-11-85	101.0	-	156.8
	GO-18-85	15.7	-	17.9
	GO-22-85	2.5	.0	2.5
	GO-14-86	.5	.0	.5
	GO-101-86	9.6	104.4	114.1
	GO-15-87	-	16.1	16.1
	GO-16-87	-	39.1	39.1
ICG Transmission Holdings Ltd.	GL-28	4.8	.1	129.7
	GL-29	43.4	.7	2 690.3
	GL-30 ^b	175.8	171.5	4 414.0
	GO-53-86	1.7	-	1.7
	GO-54-86	30.5	-	30.5
	GO-98-86	2.5	6.1	8.6
	GO-99-86	16.4	57.5	74.0
	GO-100-86	3.8	14.8	18.7
	GO-82-87	-	2.1	2.1
	GO-83-87	-	17.4	17.4

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Imperial Oil Limited	GO-6-85 ^c	87.6	-	87.6
	GO-84-86 ^c	22.4	102.5	124.9
KannGaz Producers Ltd.	GL-77	-	8.6	8.6
KM Gas Company	GO-81-86	.0	33.8	33.8
Maxus Energy Canada Ltd.	GO-23-85	1.7	4.2	5.9
Natgas Canada Inc.	GO-19-86	2.0	.0	2.0
Niagara Gas Transmission Limited	GL-55	110.1	141.5	1 052.3
	GL-78	-	46.2	46.2
	GO-32-86	53.7	-	53.7
	GO-90-86	46.6	28.7	75.3
Northridge Petroleum Marketing Inc.	GO-2-85	.0	-	66.2
	GO-4-85	.0	.0	.0
	GO-13-85	55.2	27.3	96.2
	GO-25-85	.0	14.2	14.2
	GO-6-86	.0	18.7	18.7
Pan-Alberta Gas Ltd.	GL-96	2 484.8	2 625.6	7 671.9
	GL-97	1 971.4	2 201.8	7 780.5
	GO-96-86	180.0	.0	180.0
	GO-48-87	-	2 053.5	2 053.5
Petro-Canada Inc.	GO-22-87	-	4.7	4.7
Placer CEGO Petroleum	GO-19-87	-	26.8	26.8
Poco Petroleums Ltd.	GO-19-85	142.8	-	190.5
	GO-34-86	.0	54.1	54.1
	GO-39-86	.0	74.9	74.9
	GO-87-86	2.2	337.0	339.2
	GO-88-86	.0	10.0	10.0
	GO-72-87	-	1.6	1.6
	GO-74-87	-	11.9	11.9
ProGas Limited	GL-56	427.3	-	6 732.2
	GL-98	219.5	532.6	752.1
	GO-14-85	32.9	-	46.7
	GO-15-85	59.0	-	147.3
	GO-16-85	53.2	-	112.8
	GO-9-86	44.6	-	44.6
	GO-10-86	38.9	-	38.9
	GO-11-86	25.5	-	25.5
	GO-12-86	79.3	-	79.3
	GO-26-86	.0	155.1	155.1
	GO-27-86	.0	40.9	40.9
	GO-28-86	.0	17.6	17.6
	GO-29-86	.0	155.1	155.1
	GO-97-86	77.4	62.5	139.8
	GO-85-87	-	129.7	129.7
Shell Canada Limited	GL-100	-	6.4	6.4
	GO-28-85	17.1	-	17.1
	GO-21-86	.3	-	.3
	GO-105-86	-	224.7	224.7

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Sulpetro Limited	GL-82	431.9	279.4	1 810.5
	GO-8-85	.0	-	.9
TransCanada PipeLines Limited	GL-18	205.1	.0	20 552.8
	GL-19	111.3	92.9	2 234.5
	GL-20	52.3	276.5	13 796.3
	GL-21 ^d	6 493.5	6 262.1	110 725.3
	GL-37	704.4	513.3	27 770.7
	GL-38	59.8	.0	6 770.7
	GL-39	21.7	.0	915.0
	GL-42 ^d	2 416.7	2 330.6	35 045.1
	GL-43	.0	.0	1 335.8
	GL-83	378.0	412.4	1 241.8
	GL-89	374.8	.0	604.0
	GO-7-86	619.4	-	619.4
	GO-13-86	104.9	-	104.9
	GO-24-86	16.7	-	16.7
	GO-25-86	1.7	-	1.7
	GO-40-86	.0	184.5	184.5
	GO-51-86	25.4	-	25.4
	GO-52-86	176.1	-	176.1
	GO-56-86	36.9	.0	36.9
	GO-83-86 ^c	3.8	.0	3.8
	GO-86-86	34.3	21.7	56.0
	GO-91-86	15.8	32.3	48.1
	GO-93-86	230.5	384.1	614.6
	GO-103-86	-	481.3	481.3
	GO-27-87	-	33.3	33.3
	GO-33-87 ^f	-	55.6	55.6
	GO-37-87	-	651.6	651.6
Union Enterprises Ltd.	GO-4-87 ^g	-	3.9	3.9
Wainoco Oil Corporation	GO-55-87	-	3.3	3.3
Westcoast Transmission Company Limited	GL-4	254.4	148.9	29 195.3
	GL-41	1 430.5	3 403.5	76 617.7
	GO-15-86	348.3	-	348.3
	GO-16-86	81.9	-	81.9
	GO-17-86	1.6	.0	1.6
	GO-23-86	1.0	-	1.0
	GO-94-86	77.6	.0	77.6
	GO-95-86	771.2	.0	771.2
GROSS EXPORTS		30 435.6	37 240.8	605 606.2
NET EXPORTS^h		20 970.7	28 008.7	449 001.2

a - This licence authorizes an export of gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.

b - This licence authorizes an export of gas near Sprague, Man. for import near Rainy River, Ont.

c - This order authorizes an export of gas near Emerson, Man. in exchange for an import of ethane by Dome Petroleum Limited near Sarnia, Ont.

d - This licence authorizes an export of gas near Emerson, Man. for import near Sault Ste. Marie and Sarnia, Ont. to serve the eastern Canadian markets.

e - This order authorizes an export of gas which the order holder has imported near Niagara Falls, Ont.

f - This order authorizes an export of gas as a pre-delivery of gas to Tennessee Gas Pipeline Company and for subsequent import near Niagara Falls, Ont.

g - This order authorizes an export of gas which the order holder has imported near Windsor, Ont.

h - Excludes volumes of licences/orders under footnotes.

- No data available.

Gas

8. Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1986 Actual	1987 Preliminary	Cumulative to 31 December 1987
Border Utilities Ltd.	GO-8-86	.7	.7	1.4
Canadian Western Natural Gas Company Limited	GO-5-85	1.5	-	3.1
	GO-69-86	.3	.4	.7
	GO-56-87	-	--	.0
Consolidated Natural Gas Limited	GLI-5 ^a	267.8	309.7	6 238.4
ICG Transmission Holdings Ltd.	GL-30 ^b	175.8	171.5	4 414.0
TransCanada PipeLines Limited	GL-21 ^c	6 404.1	6 445.2	110 666.4
	GL-42 ^c	2 383.4	2 320.5	35 117.5
	GO-83-86 ^d	3.7	.0	3.7
	GO-33-87 ^e	.0	32.9	32.9
Union Enterprises Ltd.	GO-3-87 ^f	-	3.9	3.9
Union Gas Limited	GO-5-86	55.8	-	55.8
	GO-41-86	56.7	-	56.7
	GO-55-86	56.7	-	56.7
	GO-68-86	48.4	-	48.4
	GO-82-86	41.1	21.8	63.0
	GO-65-87	-	56.7	56.7
	GO-84-87	-	13.6	13.6
GROSS IMPORTS		9 496.1	9 377.0	156 832.8
NET IMPORTS ^g		261.2	93.3	356.1

- a - This licence authorizes an import of gas which permits the licensee to subsequently export near Emerson, Man. pursuant to Licence GL-44.
- b - This licence authorizes an import of gas which the licensee has previously exported near Sprague, Man.
- c - This licence authorizes an import of gas which the licensee has previously exported near Emerson, Man. This natural gas serves Canadian markets.
- d - This order authorizes an import of gas which permits the order holder to subsequently export near Niagara Falls, Ont.
- e - This order authorizes an import of gas which the order holder has previously exported near Niagara Falls, Ont., as a pre-delivery of gas to Tennessee Gas Pipeline Company.
- f - This order authorizes an import of gas which permits the order holder to subsequently export near Windsor, Ont.
- g - Excludes volumes of licences/orders under footnotes.
- Too small to be expressed.
- No data available.

Gas

9. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary
PROPANE			
Amoco Canada Petroleum Company Ltd.	GL-32	92 696	92 698
	EPR-918-79 ^a	811 117	905 445
	EPR-934-86 ^b	2 239	2 286
Canstates Energy	EPR-939-87	N/A	5 862
Dome Petroleum Limited	GL-31	133 254	143 809
	GL-917-79 ^a	708 400	700 914
	GL-930-84 ^b	384 040	447 713
Imperial Oil Limited	EPR-922-80 ^a	0	0
PanCanadian Gas Products Limited	GL-34	0	0
	EPR-919-79 ^a	240 782	239 658
Petro-Canada Inc.	EPR-931-85 ^b	299	0
	EPR-934-86 ^b	0	0
Procor Limited	EPR-935-86 ^b	0	0
Superior Propane	EPR-942-87	N/A	38 126
GROSS EXPORTS		2 372 528	2 919 511
NET EXPORTS^c		225 950	236 507
BUTANES			
Amoco Canada Petroleum Company Ltd.	EBU-133-74 ^a	517 216	751 961
	EBU-933-86 ^b	7 958	7 988
Dome Petroleum Limited	EBU-132-74 ^a	634 089	712 589
	EBU-929-84 ^b	274 498	254 937
Imperial Oil Limited	EBU-911-80 ^a	0	0
PanCanadian Gas Products Limited	EBU-134-74 ^a	102 016	128 202
Petro-Canada Inc.	EBU-930-85 ^b	0	0
	EBU-934-86 ^b	0	0
Procor Limited	EBU-935-86 ^b	0	0
Texaco Canada Incorporated	EBU-916-82 ^a	1 201	0
GROSS EXPORTS		1 536 978	1 855 677
NET EXPORTS^c		0	0

Gas**9. (Cont'd) Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)**

Exporter	Licence or Order Number	1986 Actual	1987 Preliminary
ETHANE			
Dome Petroleum Limited	GL-51	814 816	839 879
GROSS EXPORTS		814 816	839 879
NET EXPORTS^c		317 672	0

		Kilograms	
EHTYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 ^a	141 351 027	127 715 403
GROSS EXPORTS		141 351 027	127 715 403
NET EXPORTS ^c		0	0

a - This licence/order authorizes an export of product for subsequent import.

b - This is an import-export licence/order whereby product exported has been previously imported.

c - Excludes volumes of licences/orders under footnotes.

N/A Not Applicable

Gas

10. Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1986 Actual	1987 Preliminary
PROPANE			
Amoco Canada Petroleum Company Ltd.	EPR-918-79 ^a	821 022	928 374
	EPR-934-86 ^b	2 239	2 286
Canstates Energy	EPR-939-87	N/A	5 862
Dome Petroleum Limited	EPR-917-79 ^a	720 778	686 023
	EPR-930-84 ^b	403 922	347 258
Imperial Oil Limited	EPR-922-80 ^a	0	0
PanCanadian Gas Products Limited	EPR-919-79 ^a	240 782	239 658
Petro-Canada Inc.	EPR-931-85 ^a	285	0
	EPR-934-86 ^b	3 065	3 065
Procor Limited	EPR-935-86 ^b	0	0
Superior Propane	EPR-942-87	N/A	38 141
GROSS IMPORTS		2 192 093	2 250 667
NET IMPORTS^c		0	0
BUTANES			
Amoco Canada Petroleum Company Ltd.	EBU-133-74 ^a	520 204	761 297
	EBU-933-86 ^b	7 958	7 988
	EBU-941-87	N/A	3 650
Canstates Energy	EBU-939-87	N/A	0
Dome Petroleum Limited	EBU-132-74 ^a	653 951	683 764
	EBU-929-84 ^b	270 746	253 958
Imperial Oil Limited	EBU-911-80 ^a	0	0
PanCanadian Gas Products Limited	EBU-134-74 ^a	102 016	128 202
Petro-Canada Inc.	EBU-930-85 ^a	0	0
	EBU-934-86 ^b	0	0
Procor Limited	EBU-935-86 ^b	0	0
Texaco Canada Incorporated	EBU-916-82 ^a	1 201	0
GROSS IMPORTS		1 556 076	1 838 859
NET IMPORTS^c		0	0

Gas

10. (Cont'd) Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1986 Actual	1987 Preliminary
ETHANE			
Dome Petroleum Limited	GL-51	499 883	782 805
	GO-7-85 ^d	77 886	N/A
	GO-33-86 ^d	79 981	N/A
	GO-85-86 ^d	32 980	119 993
	GO-44-87 ^d	N/A	119 980
GROSS IMPORTS		690 730	1 022 778

Kilograms			
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 ^a	138 633 421	115 751 879
GROSS IMPORTS		138 633 421	115 751 879
NET IMPORTS^c		0	0

a - This licence/order authorizes an import of product which has been previously exported.

b - This is an import-export licence/order whereby product imported is subsequently exported.

c - Excludes volumes of licences/orders under footnotes.

d - This order authorizes an import of ethane at Sarnia, Ont. in exchange for natural gas exported at Emerson, Man. by Imperial Oil Limited.

N/A Not Applicable

Gas

11. Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butane	
	1986 Actual	1987 Preliminary	1986 Actual	1987 Preliminary
Amoco Canada Petroleum Company Ltd. ^a	290 428	280 813	390 809	466 242
Atlantic Speedy Propane Limited	1 634	2 500	N/A	N/A
Burnell Gas of Canada Ltd.	27 353	34 256	N/A	N/A
Can-Am Liquids Corp. Ltd.	11 414	7 054	1 294	1 178
Canadian Enterprise Gas Products Ltd.	12 063	9 423	24 802	27 938
Canadian Superior Oil Ltd.	32 577	6 316	48 331	18 113
CanPet Marketing Ltd.	2 367	7 077	706	11 029
Canstates Energy	57 196	19 297	83 173	93 153
Chevron Canada Resources Ltd.	20 599	19 005	0	0
Consumers' Co-Operative Refineries Limited	1 956	4 917	0	989
Dome Petroleum Limited ^a	684 439	887 901	546 385	615 007
Dominion Propane Corp.	0	179	N/A	0
Elbow River Resources	0	0	0	8 778
Elgin Resources Limited	6 838	8 643	2 161	17 792
Enron Canada Ltd. ^b	8 301	26 250	1 958	21 137
Gas Supply (Minn.) Ltd.	N/A	7 938	N/A	N/A
Gibson Gas Liquids Ltd.	0	6 023	N/A	21 506
Gulf Canada Resources Inc.	6 445	3 168	2 009	28 734
Gulliver Energy Ltd.	122	0	495	0
Home Oil Company Limited	11 212	21 676	28 209	31 779
Husky Oil Operations Ltd.	654	0	817	0
ICG Liquid Gas Ltd.	41 924	58 860	N/A	0
Imperial Oil Limited	242 346	242 303	325 004	402 753
Irving Oil Ltd.	N/A	437	0	0
Kildair Service Ltee	0	0	0	0
Koch Hydrocarbons Canada	0	0	21 011	40 850
L.H.H. Enterprises Ltd.	N/A	0	N/A	0
L.P.G. Resources Canada Inc.	N/A	0	N/A	0
M-P Oils Limited	3 337	2 758	6 087	1 955
Mobil Oil Canada Ltd.	50 023	94 961	53 920	115 867
Newfoundland Processing Ltd.	N/A	0	N/A	0
NGL Supply (1985) Ltd.	1 086	21 838	0	5 264
Olco Oil	0	0	N/A	0
PanCanadian Gas Products Limited ^a	137 779	115 564	115 471	125 701
Petro-Canada Hydrocarbon	N/A	363 569	N/A	292 510
Petro-Canada Inc.	295 262	0	284 681	0
Petrogas Marketing Ltd.	N/A	2 128	N/A	6 985
Petromont Inc.	N/A	N/A	N/A	3 803
Petrosol International Inc.	10 000	0	0	0
Petrowest Petroleum Ltd.	19 226	35 723	13 525	10 582
Raymond Gas Liquids Marketing Ltd.	14 995	3 740	29 486	6 252
Rivecal Energy Ltd.	0	0	0	0
Shell Canada Limited	163 519	163 896	243 232	214 635
Stephens Energy Limited	25 682	23 760	31 645	73 170
Stittco Energy Limited	5 077	2 857	0	421
Sunoco Inc.	12 245	4 055	16 284	54 689
Superior Propane Inc.	N/A	49	N/A	N/A
Texaco Canada Inc.	66 670	69 591	79 258	62 567
Ultramar Canada Inc.	0	N/A	0	N/A
Unocal Canada Limited	8 285	8 912	486	3 861
Westcan Energy Ltd.	9 392	20 022	4 830	12 695
TOTAL	2 282 446	2 587 459	2 356 547	2 797 935

a - Includes net export volumes under licences.

b - Enron Canada name changed from Consolidated Gathering System Ltd.

N/A Not Applicable

Electricity

1. Certificates Issued During 1987 Approving International Power Lines

No Certificates were issued in 1987

Electricity

2. Orders Issued During 1987 Relating to International Power Lines

Applicant	Order No.	Issued	Facilities
Hydro-Québec	XE-1-87	24 Jun. 1987	One international power line extending from the distribution transformer designated as M2KIC, to a point on the international boundary line located 15 metres north-east of marker no. 353A in the municipality of Saint-Théophile. This single circuit single phase line operates at a nominal voltage of 120/240 volts.
Hydro-Québec	XE-2-87	4 Nov. 1987	One international power line extending from the distribution transformer designated as M0R7C, to a point on the international boundary line located 104 metres south-east of the distribution post M0R7G row 2 in the municipality of St-Cyprien. This single circuit single phase line operates at a nominal voltage of 120/240 volts.

Electricity

3. Licences Issued During 1987 Relating to the Export of Electric Power and Energy

Applicant	Class	Megawatts	Annual Gigawatt Hours	Term		Hearing Commenced	Issued	Licence No.
				From	To			
The Manitoba Hydro-Electric Board	Firm	200	883	93-05-01	96-10-31	9 Jun. 1987	26 Aug. 1987	EL-174

Electricity

4. Orders Issued During 1987 Relating to the Export of Electric Power and Energy

4(a) Orders issued pursuant to Section 7 of the Part VI Regulations.

Applicant	Order No.	Issued	Class	Kilowatts	Annual Megawatt Hours	Term	
						From	To
British Columbia Hydro and Power Authority	ELO-225	24 Sep. 1987	Firm	5 700	15 000	87-10-01	90-09-30
Cominco Ltd.	ELO-216	5 Aug. 1987	Carrier Transfer	—	50 000	88-01-01	90-12-31
Cominco Ltd.	ELO-217	5 Aug. 1987	Equichange	—	250 000	88-01-01	90-12-31
Cominco Ltd.	ELO-218	31 Aug. 1987	Interruptible	—	1 000 000	88-01-01	90-12-31
Cominco Ltd.	ELO-219	31 Aug. 1987	Carrier Transfer	—	1 000 000	88-01-01	90-12-31
Fraser Inc.	ELO-214	31 Aug. 1987	Firm	60 000	400 000	88-01-01	90-12-31
Hydro-Québec	ELO-213	27 Feb. 1987	Firm	50 000	250 000	87-03-01	88-02-29
Hydro-Québec	ELO-220	24 Jun. 1987	Firm	240	480	87-08-01	90-07-31
Hydro-Québec	ELO-221	24 Jun. 1987	Firm	240	480	87-08-01	90-07-31
Hydro-Québec	ELO-222	24 Jun. 1987	Firm	40	80	87-08-01	90-07-31
The Manitoba Hydro-Electric Board	ELO-215	23 Apr. 1987	Firm	50 000	110 400	87-05-01	87-10-31
New Brunswick Power	ELO-226	29 Oct. 1987	Firm	60 000	400 000	87-11-01	88-10-31
West Kootenay Power and Light Company Limited	ELO-227	16 Dec. 1987	Firm	20	50	88-01-01	90-12-31

Electricity

4. (Cont'd) Orders Issued During 1987 Relating to the Export of Electric Power and Energy

4(b) Amending orders issued relating to power and energy

Applicant	Order No.	Issued	Comments
Hydro-Québec	AO-2-EL-169	11 Jun. 1987	Amendment reflecting the Board's approval of an Interconnection agreement with Vermont Joint Owners.
Hydro-Québec	AO-3-ELO-196	24 Jun. 1987	Amendment authorizing export over the international power line authorized by Order XE-1-87.
Hydro-Québec	AO-1-ELO-213	23 Oct. 1987	Amendment increasing the quantity of energy authorized by Order ELO-213.
Hydro-Québec	AO-1-ELO-195	4 Nov. 1987	Amendment authorizing export over the international power line authorized by Order XE-2-87.
New Brunswick Power	AO-2-ELO-212	22 Oct. 1987	Amendment reflecting the Board's approval of an agreement with Central Maine Power Company.

Electricity

5. Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange ^a	Firm	Interruptible
NEW BRUNSWICK								
Fraser Inc.	EL-122*	400 000	-	378 091	-	-	16 483 905	-
	EL-123*	-	50 000	-	-	-	-	-
Maine and New Brunswick Electrical Power Company, Limited	EL-22	250 000	-	71 782	-	-	1 353 686	-
	EL-23	-	25 000	-	-	-	-	-
New Brunswick Power	EL-137	876 000	-	805 972	-	-7 070	50 706 717	-
	EL-138	876 000	-	805 972	-	-7 070	55 777 905	-
	EL-139	92 000	-	45 818	-	-2 828	3 212 138	-
	EL-140	-	6 482 400 ^b	-	3 377 665	- 933	-	124 985 832
	EL-141	1 226 400	-	-	-	252 565	-	-
	EL-142	140 000	-	-	-	-	-	-
	EL-143	-	300 000	-	200 832	- 2 376	-	9 239 270
	EL-144	250 000	-	-	-	-	-	-
	EL-145	-	179 000	-	12 096	490	-	505 137
	EL-150	1 138 000	-	201 492	-	-1 767	13 946 772	-
	ELO-197	250 000	-	-	-	-	-	-
	from ELO-201	-	-	-	-	-	-	-
	to ELO-203	445	-	265	-	-	26 685	-
	ELO-212	250 000	-	5 759	-	-	1 321 855	-
	ELO-226	400 000	-	3 840	-	-	473 395	-
TOTAL				2 318 991	3 590 593	231 011	143 303 058	134 730 239
QUEBEC								
Cedars Rapids Transmission Company, Limited	ELO-207	20 000	-	-	-	-	-	-
Hydro-Québec	EL-96	3 000 000	-	3 000 000	-	-	93 819 031	-
	EL-151	-	7 000 000	-	1 844 836	-	-	36 074 081
	EL-152	-	23 564 000 ^c	-	623 815	-	-	15 207 650
	EL-153	-	23 564 000 ^c	-	3 497 601	-132	-	75 249 157
	EL-154	11 220 000 ^d	-	749 440	-	-	18 245 485	-
	EL-155	13 140 000 ^d	-	62 897	-	-	1 752 673	-
	EL-156	25 000	-	-	-	-	-	-
	EL-165	-	3 000 000	-	-	-	-	-
	EL-166	-	4 000 000	-	3 081 841	-	-	79 414 941
	EL-167	-	6 920 000 ^e	-	1 691 158	1 259	-	56 825 654
	EL-168	1 314 000	-	1 063 697	-	-	47 522 007	-
	EL-169	-	1 752 000 ^f	-	397 497	-462	-	8 281 202
	EL-171	205 000	-	103 382	-	-	4 622 688	-
	EL-172	657 000 ^g	-	13 218	-	-	586 302	-
	from ELO-189	-	-	-	-	-	-	-
	to ELO-196	-	-	-	-	-	-	-
	and from ELO-220	-	-	-	-	-	-	-
	to ELO-222	1 822	-	965	-	-	48 686	-
	ELO-213	400 000	-	269 894	-	-	7 697 798	-
TOTAL				5 263 493	11 136 748	665	174 294 453	271 052 684

Electricity

5. (Cont'd) Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange ^a	Firm	Interruptible
ONTARIO								
Bolse Cascade Canada Ltd.	ELO-211	-	70 000	-	129	-	-	4 592
Canadian Niagara Power Company Limited	EL-161	-	500 000	-	417 613	8 331	-	14 773 526
The Canadian Transit Company	ELO-199	25	-	24	-	-	-	-
The Detroit and Windsor Subway Company	ELO-204	2 000	-	1 179	-	-	-	-
Ontario Hydro	EL-32	15 000	-	650	-	-	1 300	-
	EL-134	-	10 000 000	-	-	1 130 018	-	-
	EL-135	10 500 000	-	263 524	-	-	10 400 547	-
	EL-136	-	25 000 000 ^h	-	6 229 486	160 776	-	183 648 853
	ELO-198	200	-	14	-	-	1 011	-
St. Lawrence Power Company	EL-158	-	250 000	-	-	444	-	-
	EL-159	-	150 000	-	41 549	-	-	944 817
	EL-160	-	150 000	-	-	2 987	-	-
	ELO-188	-	250 000	-	240 079	-	-	5 797 473
TOTAL				265 391	6 928 856	1 302 556	10 402 858	205 169 261
MANITOBA								
The Manitoba Hydro-Electric Board	EL-97	-	1 800 000	-	339 800	-	-	4 666 656
	EL-98	876 000	-	165 320	-	-	6 564 371	-
	EL-99	262 800	-	262 800	-	-	5 396 575	-
	EL-100	800 000	-	-	-	-	-	-
	EL-101	2 500 000	-	-	-	167 798	-	-
	EL-102	923 000	-	-	-	-	-	-
	EL-103	-	12 000 000 ⁱ	-	2 473 244	-21 293	-	47 142 772
	ELO-200	-	-	-	-	-	74 631	-
	ELO-210	7 899	-	1 725	-	-	1 462 208	-
ELO-215*	110 400	-	71233	-	-	-	-	
TOTAL				501 078	2 813 044	146 505	13 497 785	51 809 428

Electricity

5. (Cont'd) Exports of Electric Energy (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Net Reported Dollar Value of Export	
		Firm	Interruptible	Firm	Interruptible	Exchange ^a	Firm	Interruptible
SASKATCHEWAN								
Saskatchewan Power Corporation	EL-118	438 000 ^l	-	44 350	-	-	-	-
	EL-119	-	876 000 ^k	-	10 610	58 275	-	168 053
	EL-120	876 000 ^k	-	-	-	-	-	-
TOTAL				44 350	10 610	58 275	-	168 053
BRITISH COLUMBIA								
British Columbia Hydro and Power Authority	EL-162	6 000 000	-	433 430	-	-	12 678 905	-
	EL-163	-	15 000 000 ^l	-	11 190 115	-463 625	-	178 318 954
	EL-164	-	3 000 000	-	-	449 217	-	-
	ELO-205							
and	ELO-225 ^m	15 500	-	13 043	-	-	602 910	-
		-	-	-	-	317 760	-	-
Cominco Ltd.	EL-146*	50 000	-	-	-	-	-	-
	EL-147*	-	1 100 000	-	849 011	-	-	14 819 054
	EL-148*	250 000	-	-	-	25 654	-	-
	EL-149*	-	1 000 000	-	-	-	-	-
West Kootenay Power and Light Company, Limited	ELO-227	50	-	23	-	-	1 014	-
TOTAL				446 496	12 039 126	329 005	13 282 829	193 138 008
TOTAL CANADA ⁿ				8 839 799	36 518 977	2 068 017	354 780 983	856 067 673

- a- Exchange is no value energy. It includes inadvertent and circulating flow, equichange, storage adjustment transfer and wheeling or carrier transfer.
- b- Total exports should not exceed 6 482.4 GW.h when combined with the amounts exported under Licences EL-137, EL-138, EL-150 and Orders ELO-212 and ELO-226.
- c- Total exports not to exceed 23 564 GW.h when combined with exports made pursuant to another licence under which the energy is transmitted over the lines authorized by Certificates of Public Convenience and Necessity EC-III-15 and EC-10.
- d- Total exports under EL-154 and EL-155 should not exceed 13 140 GW.h when combined together.
- e- Total exports should not exceed 6 920 GW.h when combined with the amount exported under Licences EL-165 and EL-166.
- f- Total exports should not exceed 1752 GW.h when combined with the amounts exported under Licence EL-168
- g- Total exports should not exceed 657 GW.h when combined with the amounts exported under Licence EL-171.
- h- Total exports should not exceed 25 000 GW.h when combined with the amount exported under Licence EL-135.
- i- Total exports should not exceed 12 000 GW.h when combined with the amounts exported under Licences EL-97, EL-98, EL-99, EL-100, EL-101 and EL-102.
- j- No value energy, energy to be returned.
- k- Total exports under Licences EL-119 and EL-120 should not exceed 876 GW.h. when combined together.
- l- Total exports should not exceed 15 000 GW.h when combined with exports under Licence EL-162.
- m- Energy exported in accordance with the Skagit River Valley Treaty which is not under the Board's jurisdiction.
- n- Excludes \$1 833 656 revenue for wheeling, transmission, unit rental and storage transfer charges.
- *- Expires during 1987.

Financial Regulatory

1987 Financial Information^a – Group 1 Pipeline Companies

Oil Pipelines ^b	Cochin		Interprovincial		IPL(NW)		Trans Mountain		Trans-Northern		Total
	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	
Revenue Requirement											
Return	8.5	33.7	61.5	26.0	45.3	56.9	7.7	17.4	5.3	20.7	128.3
Depreciation	5.2	20.6	30.9	13.0	14.8	18.6	3.3	7.4	1.9	7.4	56.1
Operating & Mtce.	10.3	41.3	98.3	41.5	5.1	6.4	21.0	47.4	13.0	50.8	147.7
Taxes	<u>1.1</u>	<u>4.4</u>	<u>46.2</u>	<u>19.5</u>	<u>14.4</u>	<u>18.1</u>	<u>12.3</u>	<u>27.8</u>	<u>5.4</u>	<u>21.1</u>	<u>79.4</u>
Total	<u>25.1</u>	<u>100.0</u>	<u>236.9</u>	<u>100.0</u>	<u>79.6</u>	<u>100.0</u>	<u>44.3</u>	<u>100.0</u>	<u>25.6</u>	<u>100.0</u>	<u>411.5</u>

Capitalization Of Rate Base^c											
Debt	N/A ^d	N/A	329.5	58.5	241.5	73.0	32.0	46.8	19.0	41.7	622.0
Preferred	N/A ^d	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Taxes	N/A ^d	N/A	51.6	9.2	0.0	0.0	4.4	6.4	9.2	20.2	65.2
Common Equity	N/A ^d	N/A	<u>182.2</u>	<u>32.3</u>	<u>89.5</u>	<u>27.0</u>	<u>32.0</u>	<u>46.8</u>	<u>17.4</u>	<u>38.1</u>	<u>321.1</u>
Total	<u>58.6</u>	<u>100.0</u>	<u>563.3^e</u>	<u>100.0</u>	<u>331.0</u>	<u>100.0</u>	<u>68.4</u>	<u>100.0</u>	<u>45.6</u>	<u>100.0</u>	<u>1 008.3</u>

Return On Common Equity											
Approved	N/A	N/A	24.7	13.25	14.3	16.0	4.3	14.0	2.6	13.91	
Actual	8.5	14.44	26.9	14.74	14.3	16.0	4.1	12.8	2.9	15.72	

Gas Pipelines ^b	Alberta Natural Gas		Foothills		TQM		TransCanada		Westcoast		Total
	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	
Revenue Requirement											
Return	1.9	7.6	69.1	38.0	52.1	67.9	336.0	27.5	84.8	32.9	543.9
Depreciation	1.9	7.6	35.9	19.8	16.5	21.5	93.9	7.7	29.1	11.3	177.3
Operating & Mtce.	17.1	68.1	40.6	22.3	6.2	8.1	607.0	49.8	78.1	30.3	749.0
Taxes	<u>4.2</u>	<u>16.7</u>	<u>36.2</u>	<u>19.9</u>	<u>1.9</u>	<u>2.5</u>	<u>182.6</u>	<u>15.0</u>	<u>65.9</u>	<u>25.5</u>	<u>290.8</u>
Total	<u>25.1</u>	<u>100.0</u>	<u>181.8</u>	<u>100.0</u>	<u>76.7</u>	<u>100.0</u>	<u>1 219.5</u>	<u>100.0</u>	<u>257.9</u>	<u>100.0</u>	<u>1 761.0</u>

Capitalization Of Rate Base^c											
Debt	11.1	65.0	443.4	60.4	298.0	75.0	1 393.4	54.5	429.6	54.5	2 575.5
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	344.1	13.4	34.2	4.3	378.3
Deferred Taxes	0.0	0.0	119.2	16.2	0.0	0.0	75.9	3.0	75.5	9.6	270.6
Common Equity	<u>6.0</u>	<u>35.0</u>	<u>171.9</u>	<u>23.4</u>	<u>99.3</u>	<u>25.0</u>	<u>744.6</u>	<u>29.1</u>	<u>249.7</u>	<u>31.6</u>	<u>1 271.5</u>
Total	<u>17.1</u>	<u>100.0</u>	<u>734.5</u>	<u>100.0</u>	<u>397.3</u>	<u>100.0</u>	<u>2 558.0^e</u>	<u>100.0</u>	<u>789.0^c</u>	<u>100.0</u>	<u>4 495.9</u>

Return On Common Equity											
Approved	0.7	13.25	26.4	14.25	13.4	13.50	98.6	13.25	33.8	13.50	
Actual	0.7	13.25	26.4	14.25	14.1	14.16	100.8	13.59	33.5	13.48	

- a- Based on preliminary estimates.
b- Full names of companies are listed in *Companies Under National Energy Board Jurisdiction* at the front of this report.
c- Adjusted to show deferred taxes as a source of funds.
d- Not applicable as company is financed on a joint venture basis.
e- Excludes construction work in progress.

Senior Staff of the Board¹

Office of the Executive Director

Robin D. Glass, Executive Director

Finance Branch

Wayne Ganim, Director

Personnel Branch

Jim L. Thompson, Director

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¹ As of 31 December 1987

CAI
MT 76
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National Energy Board Annual Report 1988

National Energy Board

31 March 1989

The Honourable Jake Epp, P.C., M.P.
Minister of Energy, Mines and Resources
Ottawa, Ontario

Dear Mr. Epp:

I am pleased to submit the Annual Report of the National Energy Board for the year ending 31 December 1988 in accordance with the provisions of section 133 of the National Energy Board Act, Revised Statutes of Canada, 1985, chapter N-7.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'R. Priddle', written in a cursive style.

R. Priddle,
Chairman

National Energy Board Profile

The National Energy Board is a federal regulatory tribunal that was created by an Act of Parliament on 2 November 1959. During the past 29 years, it has played an important role in the development of Canada's energy sector.

The Board's regulatory powers under the *National Energy Board Act* include the licensing of oil, natural gas, and electricity exports, the certification of interprovincial and international pipelines and designated interprovincial and international power lines, and the setting of tolls and tariffs for oil and gas pipelines under federal jurisdiction.

The *Act* also requires that the Board keep under review the Canadian supply of all major energy commodities, with emphasis on electricity, oil, natural gas, and the by-products derived from oil and natural gas, as well as the demand for Canadian energy in Canada and in export markets.

The Board also has specific responsibilities under the *Northern Pipeline Act* and the *Energy Administration Act*. In addition, Board inspectors have been appointed safety officers by the Minister of Labour to administer Part IV of the *Canada Labour Code*.

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Renumbering of Sections of National Energy Board Act

The Revised Statutes of Canada, 1985 became effective 12 December 1988 and include all federal statutes and their amendments up to 31 December 1984. There were no substantive changes to the content of the National Energy Board Act, but extensive changes in the numbering of the sections were made. In this report, references to sections of the Act use the new section numbers with the old number following in brackets.

Chairman's Letter

The year 1988 was a busy and productive one for the Board.

The Board approved major new electricity exports; used its new market-based gas export procedures in dealing with two large new gas export applications; for the first time in some years, it certificated a major gas pipeline expansion; and it continued to devote much effort to pipeline toll changes. As well, the Board published its biennial staff report on Canadian energy supply and demand, the definitive study in this area, as well as a major new report assessing the development of the Canadian gas market.

The Canadian interprovincial gas market is now substantially deregulated, in part as a result of Board decisions relating to pipeline access and tolls.

Perhaps the last major NEB piece of the deregulation puzzle was put in place when, just after the year end, the Board announced its decision in the first phase of the 1988 TransCanada tolls proceeding. This decision, which dealt primarily with toll design and tariff matters, ended with effect from 1 November 1989 the Board's three-year old prohibition on self-displacement by distributors of gas they were taking from TransCanada. Removal of the prohibition on self-displacement will assure distributors equal access to transportation services on TransCanada's pipeline. The Board sees open pipeline access as an essential element of a deregulated interprovincial gas market.

There was much emphasis in the Board's work during the year on gas exports, in terms of approval of new pipeline capacity and of new export licences. This reflected the Canadian industry's long-term confidence in export markets and in its ability to supply gas to them. The year 1988 was a record one for gas exports, with annual volumes approximately 25 percent greater than ever before.

Continuing high levels of domestic demand and the increase in export sales resulted, with few exceptions, in utilization of the Canadian gas transmission systems approaching capacity ceilings.

The Board expects in the next two years to receive applications for further major gas pipeline expansions, as well as related export licences. Given the large capital expenditures involved, their potential effect on tolls, and the related interest of toll payers, it can be expected that these projects will receive critical scrutiny.

The only major oil pipeline expansion approved by the Board in 1988 was one by Trans Mountain Pipe Line to enable it to ship increased quantities of heavy crude oil to Pacific rim markets. The major issue in the hearing was environmental concerns raised by residents of Burnaby where additional pipeline terminal facilities are to be constructed.

The Board is conscious of its responsibility for environmental protection. I believe its record is excellent: there have been no sustained problems relating to matters under the Board's jurisdiction; incidents that have occurred have been resolved promptly; and the Board gives careful consideration to environmental factors in dealing with applications for pipelines, power lines and energy exports. We have nevertheless decided to enhance our activity in this area. Therefore we shall, for example, monitor emerging environmental regulations in other jurisdictions with a view to their possible application to the Board's activity; we shall study and report on the environmental implications of our energy supply and demand projections; the Board's interface with the regulated industry on environmental matters, most recently related to PCB inventory and control, will be extended; and we will give careful consideration to the environmental considerations outlined in the Kierans report *Energy and Canadians into the 21st Century*, including obtaining a better understanding of the implications for our activities of the concept of "sustainable development".

The amendments made to the *National Energy Board Act* as a result of the government's Free Trade legislation, which was enacted at year-end, were not without public controversy. Now that the law has been changed, it is up to the Board to interpret these changes, mainly as it deals through the public hearing process with applications for energy export licences. As with other aspects of the discharge of its regulatory responsibility, the Board will take its decisions in the light of the evidence before it

and against the background of its general responsibility to serve the Canadian public interest.

Another important change in 1988 related to the reduced regulation of electricity exports. The Minister of Energy, Mines and Resources in September issued a policy statement which, it is anticipated, will later find reflection in further changes to the Board's *Act*. Meanwhile, the Board has decided to adapt its processes, to the degree that the law presently allows, to reflect the new policy. However, complete implementation can only be achieved by change to its *Act*.

The Board continued during 1988 to seek means to improve its hearing processes, in cooperation with interested parties. The Board has further defined those areas in which it thinks progress could be made in this regard. It is conscious of the costs of public hearings and of the fact that those hearings are only a means to an end - efficient regulation in the public interest - and not an end in themselves. Indeed, in October the Board published its current position on suggestions made by interested parties on improvements that could be made to its regulatory process. For the first time, the Board acknowledged that, in defined circumstances, it was prepared to address negotiated settlements by parties in toll proceedings. As well, we indicated that we would like to try to hold major toll hearings every two years rather than annually. To this end, the recent toll decision for Trans Québec & Maritimes covers tolls for 1989 and 1990. However, public hearings are likely to remain an important activity and their further improvement depends in large part on the goodwill and cooperation of applicants to the Board and intervenors in the relevant proceedings. Much progress remains to be made in this area and I am hopeful that some of it can be achieved in 1989.

Also in the matter of improving our regulatory process, the Board in 1988 issued new regulations for onshore pipelines and for dealing with crossings by other utilities of pipelines and power lines. The new regulations give the Board and the industry a simpler set of tools to work with, while at the same time continuing to properly safeguard the public interest. As well, the crossing regulations are based on the principle of giving greater flexibility to the affected pipeline companies and contractors. The Board will continue to ensure through audits and inspections that public safety is maintained.

The Board ended the year with eight permanent and two temporary Members. Mr. Jacques Farmer of Montreal, Quebec retired in April, after 14 years of varied and distinguished service with the Board. In September, Mr. David B. Smith of Priddis, Alberta was appointed a Temporary Member of the Board for a term of three years and Mr. Kenneth W. Vollman, originally of Luseland, Saskatchewan, was appointed a Temporary Member for a period of one year. In November, Mr. John R. Jenkins of Medicine Hat, Alberta, was re-appointed as a Member for a term of one year.

The Board was again well served by its staff which handled with distinction the heavy demands of hearing work, free trade and the publication of two major studies.

A handwritten signature in dark ink, appearing to read 'R. Priddle', with a stylized, cursive script.

R. Priddle

Energy Developments

Canadian exports of petroleum and natural gas increased over 20 percent in 1988; as a result, many pipelines operated at or close to capacity. Electricity exports fell 34 percent to the lowest level since 1980.

International Oil Prices

During 1988, crude oil prices fluctuated considerably. While oil prices during 1988 generally did not fall as low as those in 1986, they were well below 1987 levels for most of the year.

The reason for the weakness in prices was again the imbalance between world demand and supply. World oil demand, at an average of over 50 million barrels per day, was about 1.5 million barrels per day higher than in 1987. However, supply increased by even more than the increase in demand (resulting in an increase in inventories) because production by the Organization of Petroleum Exporting Countries, (OPEC), exceeded its self-imposed quotas and non-OPEC production rose. The principal factor influencing oil prices during 1988 - and the main reason for the fluctuations in price - was the unsuccessful attempts by OPEC to restrain production.

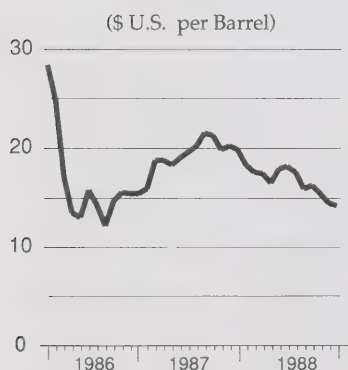
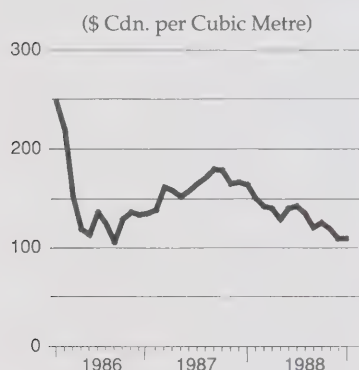
OPEC began the year with quotas identical to those of 1987 which, together with expected production by Iraq which was not included in the quota agreement, amounted to some 17.7 million barrels per day. However, its average production exceeded 19 million barrels per day during the year.

In November, OPEC agreed on quotas for 1989. The new quotas, totalling 18.5 million barrels per day, included production by Iraq, which signed the new agreement. This agreement led to a firming in prices toward the end of 1988 for oil to be delivered in early 1989.

Energy Production, Consumption and Trade

In 1988, as in 1987, high economic growth in Canada and sharp increases in the level of exports contributed to the rise in Canadian energy production.

Figure 1
Average Price of West Texas Intermediate Crude Oil in Chicago

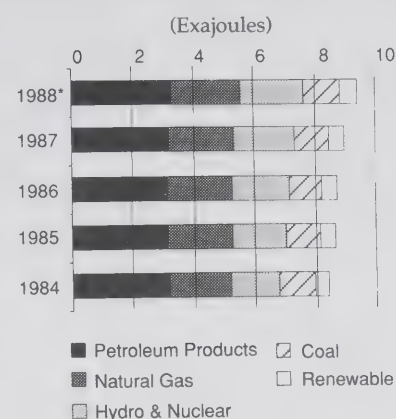


Primary energy demand rose by some 5 percent in 1988. Natural gas and coal were among the forms of energy that contributed most to the increase. In addition to increased economic activity, a decline in average temperatures in most Canadian regions also played a major role in the growth of primary energy demand.

Oil exports grew by 18 percent in 1988, and imports increased by 12 percent. Consequently, net export volumes rose by 27 percent. However, because of a decrease in prices, net export revenues dropped from \$2.5 billion in 1987 to \$2.2 billion in 1988.

In 1988, Canadian natural gas producers continued to benefit from increased access to American markets. Natural gas exports rose by 28 percent, from 1 057 petajoules in 1987 to more than

Figure 2
Canadian Energy Consumption



*Estimate

Reference: Energy Overview Appendix 1

Table 1

Canadian Trade in Petroleum, Gas and Electricity (Petajoules and Billions of Dollars)

	1986		1987		1988 ^e	
	PJ	\$ Billions	PJ	\$ Billions	PJ	\$ Billions
Exports						
Petroleum ^a	1 745	5.8	1 877	7.0	2 218	6.4
Natural Gas	790	2.5	1 057	2.6	1 355	3.0
Electricity ^b	127	1.1	163	1.2	107	0.9
Total Exports	2 662	9.4	3 097	10.8	3 656	10.3
Imports						
Petroleum ^a	944	4.0	1 126	4.5	1 263	4.2
Natural Gas	10	c	4	c	24	0.1
Electricity ^b	1	c	2	c	10	0.1
Total Imports	955	4.0	1 132	4.5	1 297	4.3
Net Export Total	1 707	5.4	1 965	6.3	2 383	6.0

The numbers in this table have been rounded.

e- Estimate

a- Includes petroleum products and natural gas liquids. Excludes exchanges between Canada and the United States.

b- Electricity is converted at 3.6 petajoules per terawatt hour on the basis of the energy content of the electricity output. Excludes exchanges between Canada and the United States.

c- Less than \$50 million.

1 350 petajoules in 1988. While in 1987 the rise in export volumes was almost entirely offset by a decrease in export prices, in 1988, export revenues grew by 15 percent.

In 1988, electricity export sales declined by 34 percent, to their lowest level since 1980. Nonetheless, average export prices increased by some 11 percent and, as a result, revenues dropped by only 27 percent. The decrease in electricity export sales to the United States was due to a number of factors, in particular, the availability of oil at relatively low prices. Oil prices have a direct impact on the operating costs of certain thermal generating stations in the United States which produce electricity that competes with Canada's electricity exports.

Crude Oil and Petroleum Products

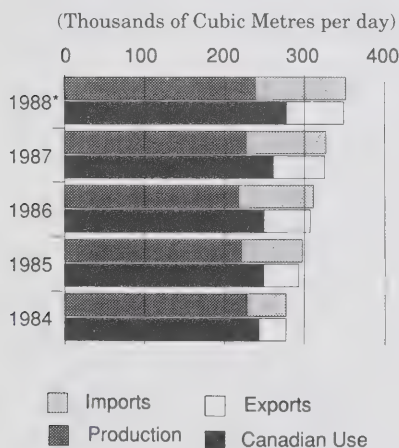
Production of Canadian Crude Oil

Crude oil production in Canada (including light crude oil, pentanes plus, and heavy crude oil) totalled approximately 277 000 cubic metres per day in 1988, about seven percent above the 1987 level of nearly 260 000 cubic metres per day.

The supply of conventional light crude oil increased by approximately two percent in 1988 to 160 400 cubic metres per day. An average of some 2 000 cubic metres per day was shut-in during 1988, reflecting a tight capacity situation on the Interprovincial pipeline system. During the year, synthetic crude oil production averaged approximately 34 400 cubic metres per day, about 20 percent higher than in 1987. Both the Suncor and Syncrude plants operated at high output levels in 1988 and significant increases in output resulted from the completion of the capacity expansion project at Syncrude.

Blended heavy crude oil supply (i.e., including condensate) reached a record level in 1988, rising from 73 000 cubic metres per day to about 82 000 cubic metres per day, on account of increased development activity in both conventional and bitumen-producing areas. In the fourth quarter, however, lower crude oil prices prompted heavy crude oil and bitumen producers to reduce development activities, to shut in uneconomic wells and to abandon others to minimize capital outlays. During November, the Co-op Upgrader at Regina came on-stream. An operating capacity of 8 000 cubic metres per day is expected by about mid-1989.

Figure 3
Canadian Crude Oil and Equivalent Supply and Disposition



* Estimate

Reference: Energy Overview Appendix 2

Oil Refining

In 1988, the quantity of crude oil refined in Canada increased by about six percent. Most of the rise occurred in the Atlantic region where the Come-By-Chance refinery was recommissioned in September 1987 as an export refinery. The growth in crude oil processed at Canadian refineries reflected rising product demand in both domestic and export markets. Domestic demand for main products (including motor gasoline, middle distillates and heavy fuel oil) rose by about six percent compared with 1987, while export demand increased by 43 percent. In the domestic market, demand for light products such as gasoline and diesel recorded growth rates of three percent and eight percent respectively. Heavy fuel oil use grew by some 19 percent, reflecting new demand by the electricity generating utilities in the Atlantic provinces and by the pulp and paper industry in Quebec.

Canadian refineries purchased domestic and foreign crude oil at a rate of about 166 600 and 71 700 cubic metres per day respectively in 1988. Compared with 1987, this was an increase of about three percent in domestic purchases and 14 percent in foreign crude oil purchases. Offshore supply increased sharply in the Atlantic provinces to satisfy the requirements of the Come-By-Chance refinery but fell in Quebec and Ontario. Imports from the North Sea area again represented the largest share of our foreign purchases.

Crude Oil Exports

Total crude oil exports, including synthetic crude oil, rose to 112 800 cubic metres per day from 99 600 cubic metres per day in 1987. The 1988 total was composed of 50 200 cubic metres per day of light crude oil and 62 600 cubic metres per day of heavy crude oil. The estimated value of crude oil exports in 1988, however, was \$4.0 billion compared with \$4.9 billion in 1987, reflecting the drop in international oil prices.

The American mid-west continued to be Canada's most important market. Smaller volumes were shipped to the eastern seaboard and American Gulf destinations from Montreal, and to the American west coast and far east markets from Vancouver.

The largest export buyers of light Canadian crude oil in 1988 were Clark Oil, Conoco, Sun Refining and United Refining; for heavy Canadian crude oil, the largest foreign buyers were Koch Refining, Unocal, Mobil and Amoco. (Refer to Oil Appendix 5 for more details.)

Figure 4
Crude Oil F.O.B. Export Price
(\$Cdn. per Cubic Metre)

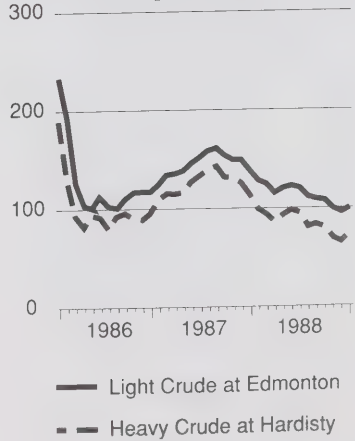


Figure 5
**Canadian Crude Oil Disposition
1988**

(Thousands of Cubic Metres per Day)

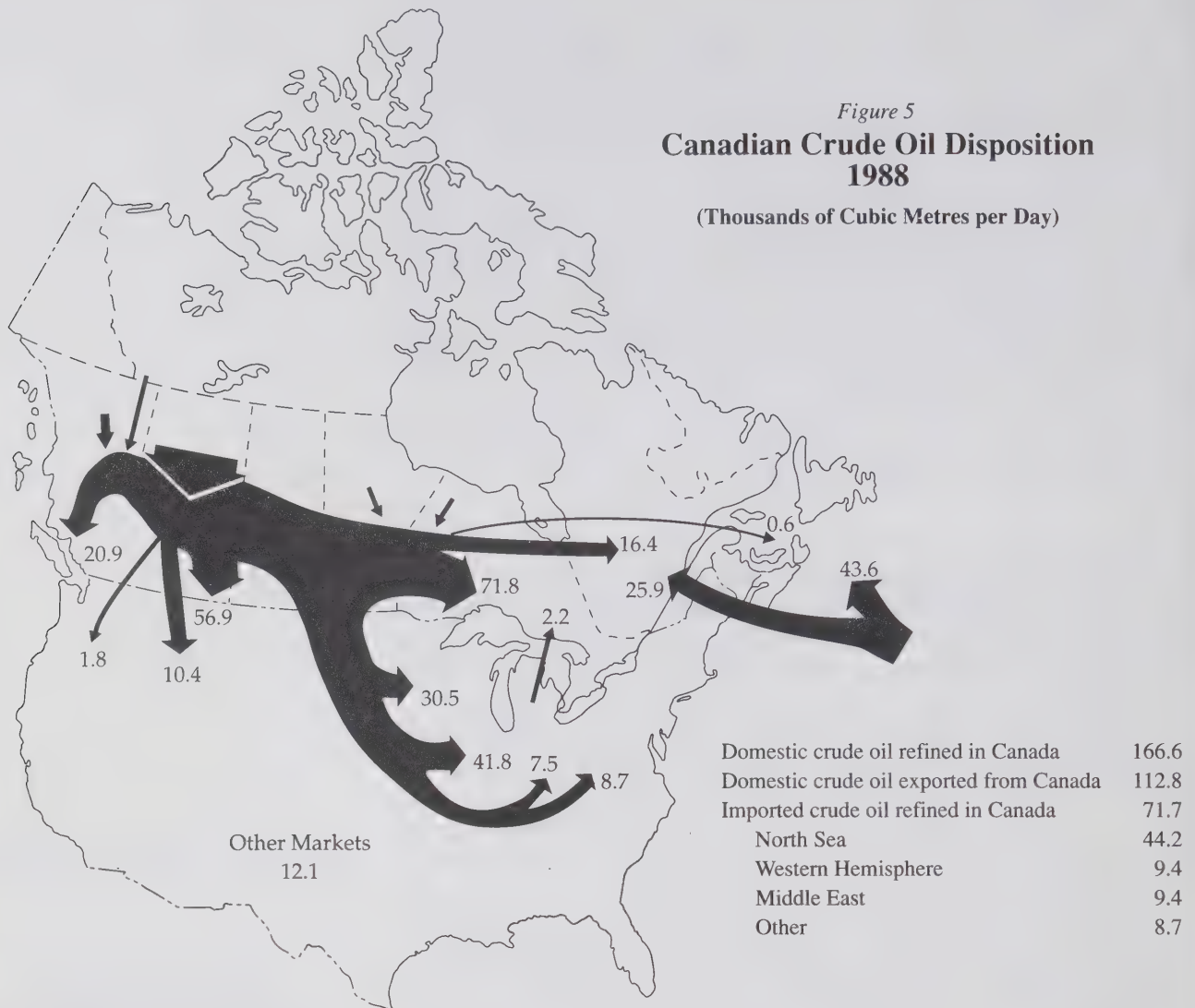
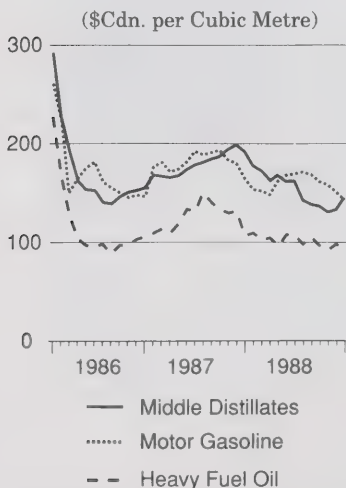


Figure 6
Main Petroleum Products
Average F.O.B. Export Price



Main Petroleum Product Exports

During 1988, main petroleum product export volumes averaged 32 000 cubic metres per day, an increase of 44 percent over the previous year. Export revenues, however, excluding products from processing agreements, declined by 18 percent to \$ 0.8 billion, reflecting generally weaker world oil prices. Figure 6 shows fluctuations in the export prices of main petroleum products during 1987 and 1988.

The United States was again the largest buyer of petroleum products, accounting for 96 percent of total exports. Exports from Atlantic Canada were much higher because of the new refining capacity at Come-By-Chance. Export volumes by type of product and by region are shown in Table 2.

Table 2
Petroleum Product Exports, 1988
 (Thousands of Cubic Metres)

	Motor Gasoline	Middle Distillates	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total ^a
Atlantic	2 249	2 615	376	1 013	772	7 025
Quebec	111	345	-	307	-	763
Ontario	196	653	104	801	-	1 754
Prairies	255	412	162	66	-	895
British Columbia	555	413	205	70	21	1 264
Total	3 366	4 438	847	2 257	793	11 701
Average Export Price (\$/m³)	159	146	151	92	b	-

a - Excludes propane, butanes, lubricants, greases, and asphalt.

b - Cannot be released for reasons of confidentiality.

Oil Pipeline Capacity

In spite of the completion of several construction projects in the past few years, the Interprovincial pipeline operated at capacity in 1988. Interprovincial was frequently required to apportion pipeline space among shippers as tenders exceeded pumping capacity. Trans Mountain, the other major carrier of crude oil and refined petroleum products to domestic and export locations, did not have to apportion space in 1988. It did, however, operate at or close to capacity throughout the year.

Both pipeline companies are assessing the need to increase capacity. Their decisions as to the need for additional facilities will, of course, depend on their projections of crude oil prices and supply. Such expansions would be subject to Board approval.

Natural Gas

Domestic Supply and Demand

Direct sales of natural gas increased very rapidly during 1988, reflecting the adjustment of markets to deregulation of the gas industry and competition among gas producers.

Net natural gas sales grew by nearly 10 percent, from 47.8 billion cubic metres in 1987 to 52.1 billion cubic metres in 1988, owing to increases in all the major consuming sectors.

Figure 7
Natural Gas
 Supply and Disposition

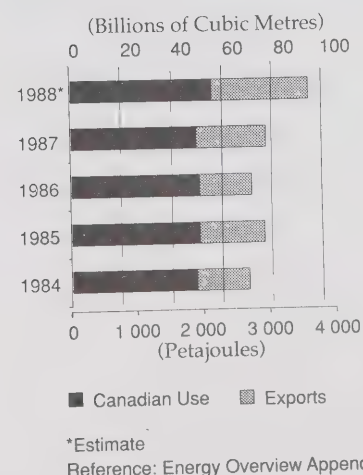
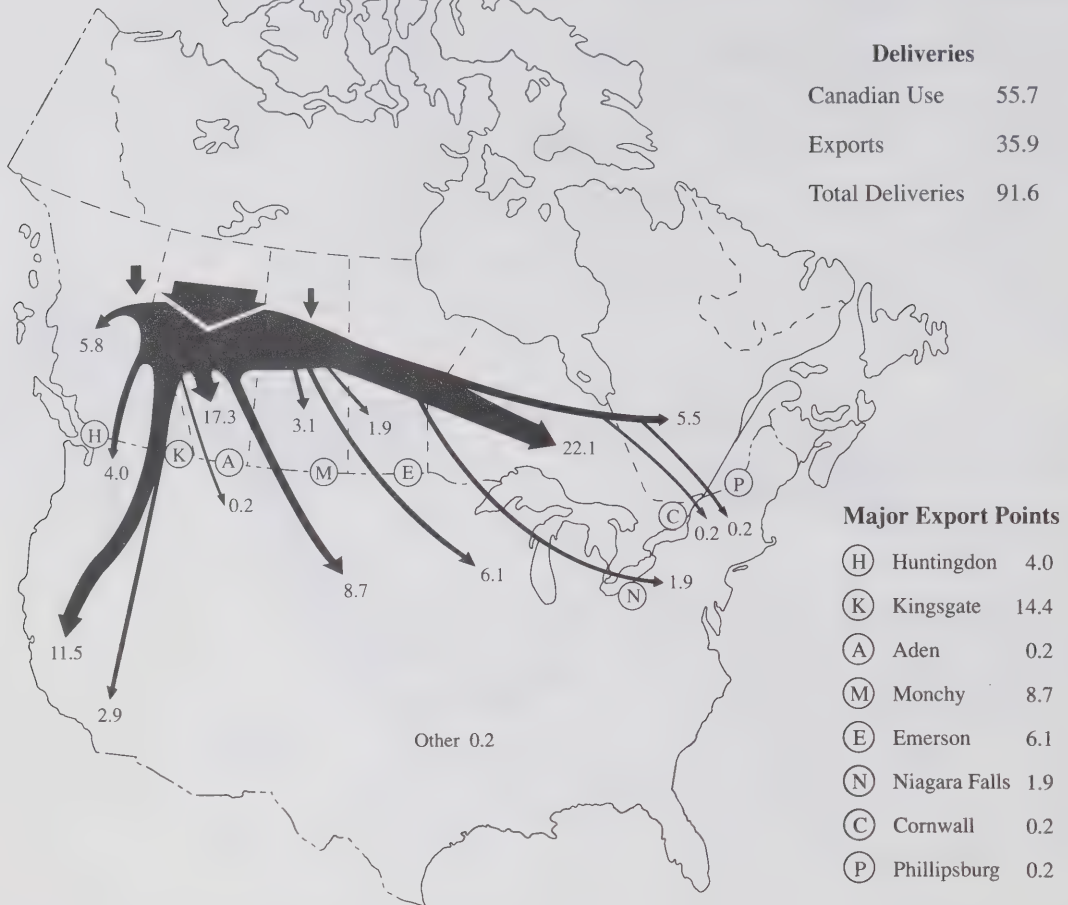


Figure 8
**Natural Gas Disposition
 1988**

(Billions of Cubic Metres)



Sales in the residentail and commercial sectors rose as a result of a significant drop in average Canadian temperatures. In the industrial sector, sales increased mainly because of a sharp rise in economic activity.

As a result of the substantial growth of natural gas sales in domestic and export markets, natural gas production increased by 13.8 billion cubic metres (from 77.8 billion cubic metres in 1987 to 91.6 billion cubic metres in 1988).

Exports

Gas exports, all of them to the United States, rose by 28 percent in 1988, from 28 billion cubic metres to 35.9 billion cubic metres.

However, natural gas prices fell, reflecting gas-to-gas competition in the American market. Export prices averaged \$2.20 per gigajoule in 1988 compared with \$2.43 per gigajoule during 1987, a decline of approximately 9 percent.

Overall, there was an increase of about 15 percent in total gas export revenues in 1988, from \$2.6 billion to \$3.0 billion.

California accounted for 39 percent of Canada's 1988 gas export sales, the central region 39 percent, the Pacific northwest 11 percent, and the northeast 9 percent. (Figure 10)

The central region was responsible for 83 percent of the year-over-year increase in export volumes and most of the remainder went to the northeast and California. As a result of the improvement in total export volumes, the Canadian share of the American gas market rose to approximately 7.0 percent from 5.8 percent in the previous year.

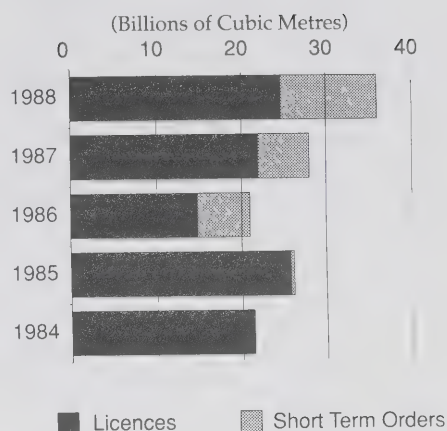
Access to American pipeline systems improved significantly. By the end of 1988, 20 major American pipelines were open access carriers, four with direct access to Canadian gas. This facilitated rapid growth in short-term sales which grew from 6.1 billion cubic metres in 1987 to 11.3 billion cubic metres in 1988. Short-term sales accounted for about 32 percent of total natural gas exports in 1988. Three other large pipeline companies, Pacific Gas Transmission, Midwestern and Great Lakes, have direct access to Canadian gas but are not open access carriers. However, this did not restrict Canadian exporters' access to American markets as these pipelines were contractually fully committed and were operating near capacity.

At year-end 1988, the outlook for 1989 export sales was positive; most interstate pipelines carrying Canadian gas were providing open access and gas export prices were expected to stabilize.

Natural Gas Liquids

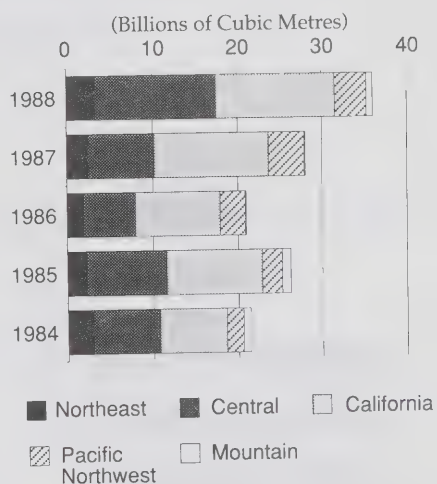
The estimated total net Canadian production of propane and butanes in 1988 was 9.1 million and 5.5 million cubic metres respectively, approximately nine percent and seven percent respectively above the previous year. Ethane production in 1988 is estimated at 10.3 million cubic metres, an increase of about 11 percent compared with 1987. While no ethane was exported in 1988, propane and butane exports displaced American imports from other sources and rose by 44 percent and 22 percent, totalling approximately 3.7 and 2.9 million cubic metres, respectively.

Figure 9
Natural Gas Exports



Note: Exports for terms of less than two years were effectively deregulated as a result of the October 1985 Agreement on Natural Gas Markets and Prices.

Figure 10
Natural Gas Exports by Region



Electricity

Generating Capacity

In 1988, Canada's total net generating capacity was approximately 96 101 megawatts, an increase of about 1 434 megawatts, or two percent over 1987.

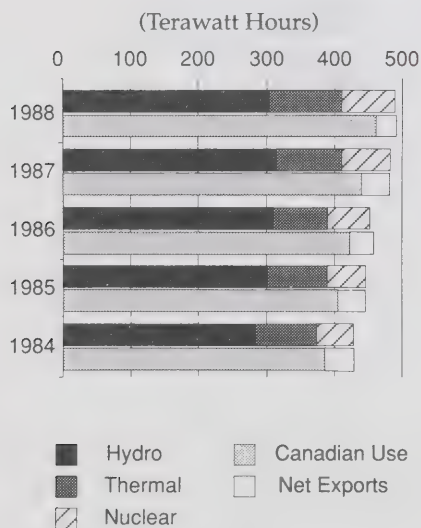
Generation and Consumption

Total generation of electricity in 1988 was an estimated 490 000 gigawatt hours, up two percent over 1987. Approximately 62 percent of the total was supplied from hydroelectric generation, 22 percent from conventional thermal generation and 16 percent from nuclear generation. Hydroelectricity's share of total generation was down slightly from the previous year as a result of lower water levels experienced by Canadian utilities. Total Canadian consumption in 1988 is estimated to have been 463 000 gigawatt hours, an increase of five percent over 1987.

Export Sales

In 1988 total sales amounted to 29 728 gigawatt hours, a decrease of 34 percent from 1987 and the lowest level of sales since 1980. Revenue from 1988 electricity exports of \$880 million represents a decrease of 27 percent from last year. All major exporting utilities reported lower export sales compared to 1987.

Figure 11
Electricity Generation and Disposition



Reference: Energy Overview Appendix 4

The New England and New York markets for Canadian electricity were sluggish throughout most of the year. Consequently, export sales from New Brunswick Power, Hydro-Québec and Ontario Hydro decreased by 16 percent, 28 percent and 23 percent respectively from 1987 levels. For the most part, the reduction in electricity exported was attributed to strong domestic demand, low water levels and lower-priced oil for the American producers.

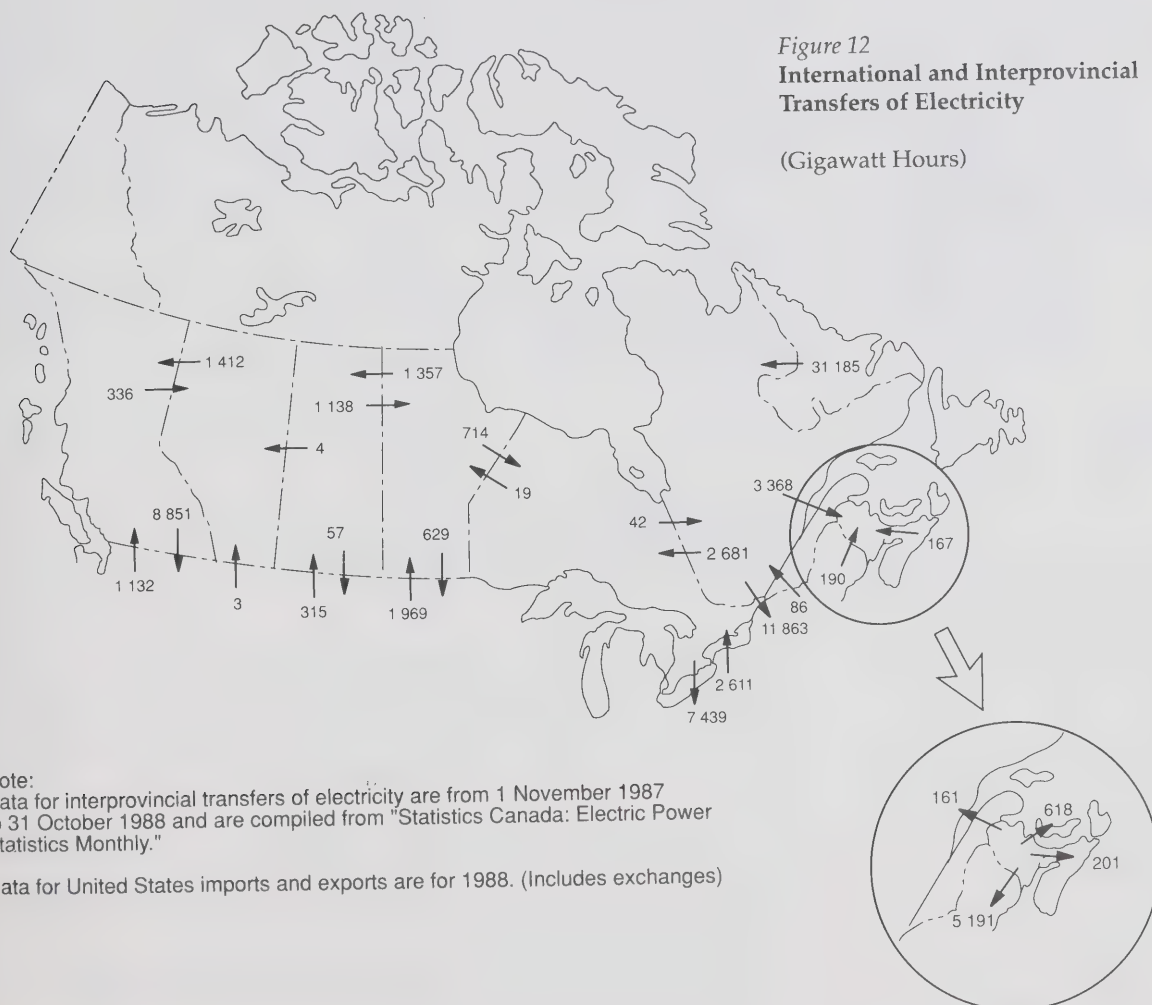
Manitoba Hydro's exports have fallen substantially in the last two years. A prolonged dry period in Manitoba, which began in 1987 and continued throughout 1988, lowered its hydroelectric production and caused its sales to slip from seven terawatt hours in 1986 to less than one terawatt hour this year. Manitoba Hydro was a net importer of electricity for every month in 1988 with the exception of May when it benefitted from the spring run-off. Net imports were 1 360 gigawatt hours at a net cost of \$13.9 million. Saskatchewan Power was also a net importer in 1988, where net imports were 267 gigawatt hours at a cost of \$5 million.

B.C. Hydro's export sales were also down from the previous year. However, 1987 exports had been exceptionally high and, even though its export sales were down by 49 percent in 1988, B.C. Hydro was still the second largest exporter of electricity, after Hydro-Québec.

At 62 percent, hydro remained the leading source of Canadian production for electricity exports; however, due to lower sales from the hydro-based utilities, its share was lower than in previous years. Coal was the second leading source at 22 percent, followed by nuclear at eight percent, oil at five percent and imports at two percent. Coal's share was up over the previous year partly because of B.C. Hydro's exports of coal-fired energy purchased from Alberta. These exports had begun in late 1987.

Figure 12 shows exports and imports in 1988 as well as interprovincial transfers for the 12 months ending 31 October

Figure 12
International and Interprovincial
Transfers of Electricity
(Gigawatt Hours)



1988. Table 3 shows, by province, the destination of all exports. For the first time, in 1988, the New England region was the leading import area, accounting for about 39 percent of all Canadian electricity exports.

Table 3

Canadian Electricity Exports to the United States in 1988
By Importing Region/State and Exporting Province
 (Gigawatt hours)

To Region/State	From Province	Sales ^a
Maine	New Brunswick	3 091
Massachusetts	New Brunswick	1 915
	Quebec	<u>279</u>
	Total	2 194
New Hampshire	New Brunswick	43
Vermont	Quebec	1 789
	Ontario	<u>401</u>
	Total	2 190
New England ^b	Quebec	3 931
	New Brunswick	<u>4</u>
	Total	3 935
New York	Quebec	5 865
	Ontario	<u>4 835</u>
	Total	10 700
Michigan	Ontario	383
Minnesota	Manitoba	660
	Ontario	<u>4</u>
	Total	664
North Dakota	Manitoba	64
	Saskatchewan	<u>1</u>
	Total	65
Washington	British Columbia	1 067
Oregon	British Columbia	2 997
California	British Columbia	2 269
Other ^c	British Columbia	<u>130</u>
TOTAL		29 728

a Excludes exchanges.

b Exports are made to the New England Power Pool - the quantities to each state cannot be accurately determined.

c Includes Idaho, Montana, Nevada and Utah.

Oil and Gas Activity and Reserves

Exploration and Drilling Activity

Exploration and drilling activity in the Canadian oil and gas industry was higher in 1988 than in 1987. This increase was evident in the conventional areas of Canada and to a lesser extent in the frontiers.

The number of well completions increased from some 6 800 in 1987 to about 8 950 in 1988. There was an increase in the number of drilling rigs operating during the first three quarters of 1988, but drilling activity declined during the fourth quarter of 1988, primarily as a result of the mid-summer fall in oil prices.

Land sale results improved over 1987 in terms of the amount of land acquired but declined in terms of the unit price paid. During 1988, the provincial and federal governments sold the mineral rights to 3.7 million hectares, the second highest annual total this decade and an increase of some 25 percent over the 2.9 million hectares sold in 1987 (Figure 13). The price per hectare which industry paid to acquire these rights fell during 1988, from an average of \$234 per hectare in the first quarter to \$129 per hectare in the last quarter. On an annual basis, the average price per hectare in 1988 was \$177, compared to \$269 and \$131 per hectare in 1987 and 1986 respectively (Figure 14).

Geophysical activity in 1988 was slightly above that in 1987. The average number of crews operating each month for the period January 1986 to December 1988 is shown in Figure 15.

Oil and Gas Reserves

The Board's estimate of remaining established reserves of conventional crude oil as of 31 December 1987 is 705.5 million cubic metres, 25.3 million cubic metres less than the estimate for year-end 1986.

Initial (before production) established reserves of conventional crude oil increased 45.7 million cubic metres through discoveries, extensions to reserves, and revisions to previous estimates.

The Board does not include oil discovered in the frontier regions in its established reserves estimates because of uncertainty as to their economic viability, even though small deliveries of crude oil have been made by tanker from the Bent Horn field in the Arctic Islands and from the Amauligak field in the Beaufort Sea.

Figure 13
Land Sales

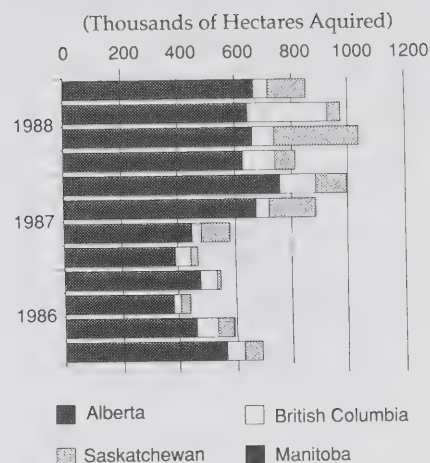


Figure 14
Land Sales

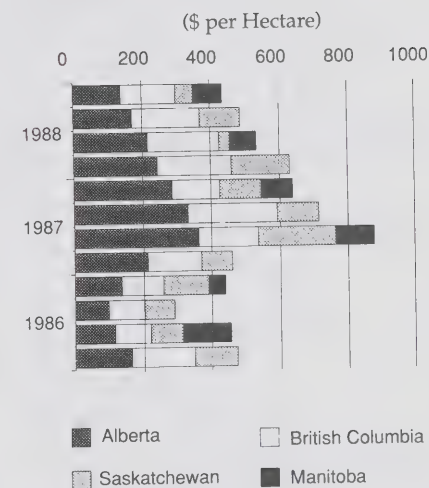


Figure 15
Geophysical Activity — Canada

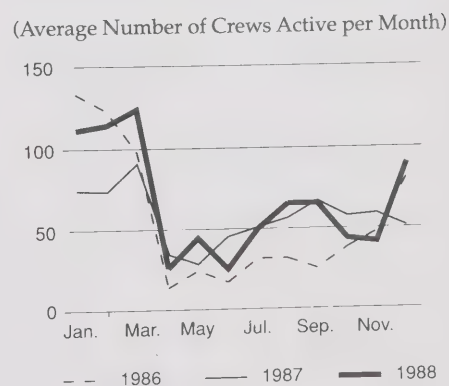
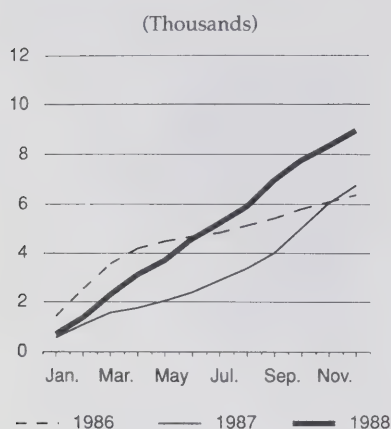


Figure 16
Canadian Well Completions



The Board's estimate of remaining established reserves of marketable natural gas in the conventional producing areas as of 31 December 1987 is 72.0 exajoules, 3.3 exajoules lower than the estimate for year-end 1986.

Initial established reserves of natural gas decreased 0.5 exajoules, although in volumetric terms they increased slightly. The reason for the decrease in the reserves expressed in exajoules was that lower estimates of the heat content of the gas were adopted, based on new data prepared by the Alberta Energy Resources Conservation Board to reflect the installation of facilities which remove natural gas liquids from the gas.

Table 4
Estimated Established Reserves of Conventional Crude Oil
at 31 December 1987
(Millions of Cubic Metres)

	Initial	Remaining
British Columbia	84.7	17.9
Alberta	2 120.7	539.0
Saskatchewan	458.4	111.9
Manitoba	35.0	9.4
Southern Yukon and Northwest Territories	35.2	26.6
Ontario and Other Eastern Areas	10.4	0.9
Total for Canada	2 744.3	705.5

Note: The numbers on this table have been rounded.

Figure 17
Canadian Rig Activity

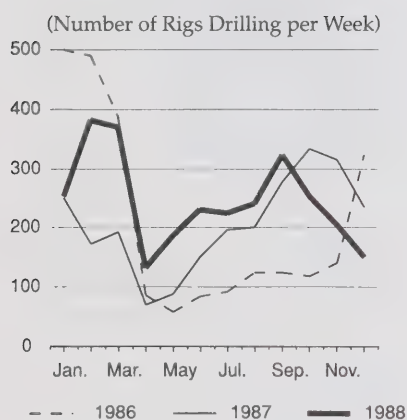


Table 5
Estimated Established Reserves of Marketable Natural Gas
at 31 December 1987
 (Exajoules)

	Initial	Remaining
British Columbia	16.0	8.4
Alberta	114.0	60.7
Saskatchewan	3.5	2.1
Southern Yukon and Northwest Territories	0.5	0.3
Ontario and Other Eastern Areas	1.5	0.4
Total Conventional Areas	135.5	72.0
Mackenzie Delta	5.6	5.6
Arctic Islands	12.0	12.0
Total for Canada	153.1	89.6
(Total for Canada in Billions of cubic metres)	3 961.2	2 319.7

Note: The numbers on this table have been rounded.

Figure 18
Crude Oil
 Reserves Additions vs Production

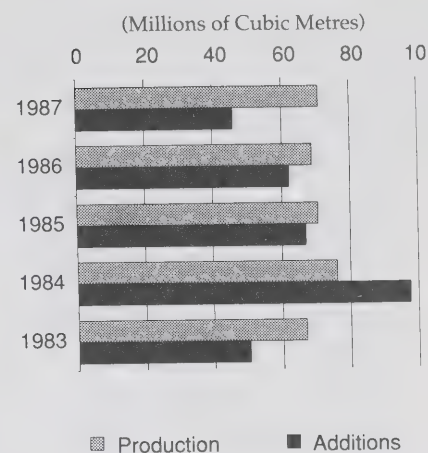
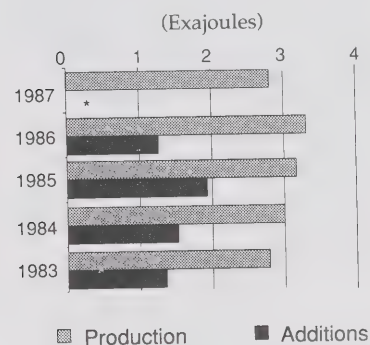


Figure 19
Natural Gas
 Reserves Additions vs Production



*In 1987, reserves additions amounted to 0.3 billion cubic metres, but total initial reserves when expressed in exajoules declined by 0.5 exajoules.

The Year at

Oil

- issued 125 orders for short-term exports (up to 12 months for light crude and petroleum products and 24 months for heavy crude); orders do not limit the volume exported but permit the Board to monitor export volumes and prices

Natural Gas

- authorized Pan-Alberta Gas Ltd. to export 59.7 billion cubic metres (2.1 trillion cubic feet) of natural gas over a 24-year period and Canadian Hunter Exploration Ltd. to export 3.4 billion cubic metres (120 billion cubic feet) over 20 years
- heard applications by Dome Petroleum Limited, ProGas Limited, Western Gas Marketing Limited and Alberta and Southern Gas Co. Ltd. to export natural gas to the United States
- received applications from Western Gas Marketing Limited and ProGas Limited to extend the terms of their licences, from Esso Resources Canada Ltd., Shell Canada Ltd., and early in 1989, from Gulf Canada Resources Limited, to export Mackenzie Delta gas, and from some eight companies to export natural gas using the TransCanada pipeline
- approved 91 orders for short-term (up to 24 months) exports¹; orders do not limit the volume exported but permit the Board to monitor export volumes and prices
- approved 22 orders for short-term (up to 12 months) imports², authorizing the import of about one billion cubic metres

(35.3 billion cubic feet) of natural gas in 1988 and 1989; approved one long-term import order

- approved one order directing TransCanada to transport up to 51 thousand cubic metres (1.8 million cubic feet) per day during a twelve-month period commencing 1 November 1988

Electricity

- received a request from the Minister asking the Board to identify and examine adequate measures to permit interprovincial trade in electricity to grow, to encourage greater cooperation between utilities and to give buyers and sellers commercial access to transmission capacity across intervening provinces
- issued a memorandum of guidance informing interested parties of the steps that will be followed to implement the new export policy announced by the Minister in September
- approved the export by Hydro-Québec of 70 terawatt hours of firm energy over a 10- to 14-year period to New England Utilities
- authorized Maine and New Brunswick Electrical Power Company to export 37 megawatts of firm power and 200 gigawatt hours of energy per year over 20 years to Maine Public Service Company
- authorized Hydro-Québec to export 50 megawatts of firm power and 438 gigawatt hours of firm energy per year to the Vermont Joint Owners over a 32-month period

- renewed 16 orders for a small quantity of border accommodation exports (to American customers served solely by Canadian utilities)
- issued 14 orders for short-term (up to 36 months) exports of electrical energy, authorizing the export of approximately 1280, 1970, 700 and 65 gigawatt hours during the years 1988 to 1991, respectively

Energy Studies

- published Canadian Energy Supply and Demand: 1987-2005, the third in a series of staff studies issued every two years, containing projections of the supply and demand of the major energy commodities: electricity, oil, natural gas and coal, and their by-products
- issued Natural Gas Market Assessment, 1988, the first of a series of staff studies to be published from time to time, providing an assessment of the functioning of the Canadian natural gas market and a review of the short-term outlook for the supply and demand for Canadian natural gas

Pipelines

- approved two major expansions, estimated to cost \$713 million, of the TransCanada PipeLines Limited system to increase deliveries to the domestic market

- 1 Excludes orders for export and re-import of Canadian gas.
- 2 Excludes orders for import and re-export of American gas.

a Glance

in eastern Canada and to export markets in the northeastern United States

- approved an expansion of the Trans Mountain Pipe Line Company Ltd. system in Alberta and British Columbia to transport increased volumes of heavy crude oil
- approved construction of three new international pipelines: St. Clair Pipelines Ltd., Shell Canada Products Limited, and Novacorp International Pipelines Ltd., crossing the international boundary in southwestern Ontario
- issued, after extensive consultation with industry, new Onshore Pipeline Regulations providing for the safe design, construction, operation, and abandonment of oil and gas pipelines; also developed, in consultation with industry, and issued for comment a draft of new Offshore Pipeline Regulations, based on the standards of the Canadian Standards Association
- continued to work closely with industry on the review of recommendation 5.9 (relating to the inspection and testing of certain pipeline welds) and considered other recommendations designed to enhance pipeline safety, contained in the Board's 1986 report following an investigation of a fatal accident in 1985 on the Interprovincial pipeline near Camrose, Alberta
- issued new streamlined Pipeline Crossing Regulations which define the responsibilities of an

individual when excavating or constructing across federally regulated pipelines (Part I) and the related responsibilities of the pipeline companies (Part II); Board approval for those activities is no longer required, provided the pipeline company concurs with the proposed excavation or construction

- issued an order eliminating the requirement for prior Board approval for the construction of pipelines across roads and utilities

Toll Regulation

- held a hearing on toll design and tariff issues on TransCanada PipeLines Limited
- authorized Foothills Pipe Lines (Yukon) Ltd. to introduce interruptible service on the Saskatchewan portion of its pipeline system
- approved new tolls for Trans Québec & Maritimes Pipeline Inc. effective 1 January 1989 and 1 January 1990

Legal Actions

- Federal Court of Appeal held that a six-kilometre pipeline proposed to be built by Cyanamid Canada Pipeline Inc. in southwestern Ontario fell within provincial rather than federal jurisdiction; a further appeal by Cyanamid to the Supreme Court of Canada is pending
- Federal Court of Appeal dismissed an application by Manitoba Oil and Gas Corporation for leave to appeal the Board's denial of the

company's application for an order requiring TransCanada to transport natural gas for it

- Federal Court of Appeal dismissed an application by the Corporation of the District of Burnaby for leave to appeal the Board's decision authorizing Trans Mountain to expand its pipeline system in Alberta and British Columbia, including the installation of three new storage tanks at Burnaby.

Regulatory Process

- concluded extensive consultations with interested parties on steps that might be taken to improve and streamline the regulatory process, and published a report setting out its current position with respect to suggestions received from interested parties

Organization and Administration

- Governor in Council extended by one year John R. Jenkins' term as a Member and appointed two Temporary Members, David B. Smith for three years and Kenneth W. Vollman for one year
- Jacques Farmer, Member, retired after 14 years' service at the Board
- completed a feasibility study on recovering the costs of regulation from regulated companies; Board is drafting regulations for future consultation with industry
- provided advice on the changes to its Act and regulations necessary to implement the Free Trade Agreement

Board Activities

...included 13 hearings from Vancouver to Saint John and applications relating to pipeline additions, environment, land matters, and financial regulation; oil, gas and electricity exports; and energy studies.

Hearings and Inquiries

During 1988, the Board conducted all or part of 13 hearings in locations from Vancouver, British Columbia to Saint John, New Brunswick, for a total of 125 hearing days.

This section summarizes the major decisions issued following public hearings and provides information on other applications before the Board during 1988.

Natural Gas Exports

Pan-Alberta Gas Ltd. - Extension of Licence

By application dated 21 May 1987 and amended in December 1987, Pan-Alberta applied for an extension of Licence GL-96 from 31 October 1996 to 31 October 2012 and an increase of 45.6 billion cubic metres (1.6 trillion cubic feet) in the total quantity authorized under the term of the licence. This licence allows the export of natural gas to Pacific Interstate Transmission Company for sale to the California market.

The Board held a public hearing in Calgary in March 1988 and released its Reasons for Decision in July. The Board decided to revoke the existing licence, effective 31 October 1988, and to issue a new licence, GL-106, authorizing the export of 59.7 billion cubic metres (2.1 trillion cubic feet) of natural gas over the 24-year period, 1 November 1988 to 31 October 2012. This was the first decision under the market-based procedure which the Board adopted in 1987 for use in considering natural gas export licence applications.

Canadian Hunter Exploration Ltd. - Licence

In an application dated 5 May 1988, Canadian Hunter requested authorization to export up to 3.4 billion cubic metres (120 billion cubic feet) of natural gas over a 20-year period, beginning in July 1990. The natural gas would be sold to Gas Alternative Systems

Inc. of New York and would be used to supply a new cogeneration facility to be built in Syracuse, New York.

The Board held a one-day public hearing in Calgary in August and released its Reasons for Decision in September 1988 approving the requested licence.

Dome Petroleum Limited - Licence

By application dated 28 July 1988, Dome applied for a licence to export a total of 1.504 billion cubic metres (53 billion cubic feet) of

Highlights of the Pipeline Companies Under National Energy Board Jurisdiction

	1988 Rate Base ¹ (\$000,000)	1988 Revenue Requirement (\$000,000)	Length (Including Loops) (km)	1988 Actual Throughput (10 ⁶ m ³)
Group 1² Gas				
Alberta Natural Gas Company Ltd	16	26	172	14 622
Foothills Pipe Lines (Yukon) Ltd.	698	179	849	11 660
Trans Québec & Maritimes Pipeline Inc	383	72	341	2 576
TransCanada PipeLines Limited	2 567	914	10 675	36 782
Westcoast Energy Inc.	818	276	4 514	9 213
Group 1 Oil				(10 ³ m ³)
Cochin Pipe Lines Ltd.	52	28	1 125	3 667
Interhome Energy Inc.	675	269	6 652	83 046
Interprovincial Pipe Line (NW) Ltd.	319	76	868	1 789
Trans Mountain Pipe Line Company Ltd.	85	57	1 328	10 317
Trans-Northern Pipelines Inc.	47	24	847	9 180
Group ²				
Total	N/A	N/A	3 160	N/A

¹ Net plant or equivalent, including working capital.

² Group 1 consists of the ten major pipeline companies. The remaining companies have been designated as Group 2 companies.

Sources: Preliminary estimates obtained from the pipeline companies.

natural gas over 13 years, beginning 1 November 1988, to Northern States Power Company. Dome currently exports under a short-term export order and wishes to convert the existing sale into a long-term arrangement.

The Board held a public hearing in Calgary in October 1988 and announced its decision in January 1989, approving the application.

ProGas Limited and Western Gas Marketing Limited - Licence

On 11 August 1988, ProGas and Western Gas Marketing, as agent for TransCanada PipeLines Limited, filed applications to vary their existing licences or to have new licences issued to serve Phase II of the Ocean State Power project, a combined cycle generating plant, to be constructed in Burrillville, Rhode Island.

ProGas proposes to export 5.17 billion cubic metres (186 billion cubic feet) over a 20 and a half year period, beginning 1 May 1991. These quantities were previously authorized for export pursuant to Licence GL-81 and do not represent incremental export volumes.

Western Gas Marketing proposes exporting 5.4 billion cubic metres (196 billion cubic feet) over 21 and a half years, also beginning May 1991. The volume requested was previously authorized for export under Licence GL-90.

A public hearing to consider both applications was held in October 1988.

The decision, approving the applications, was announced in January 1989.

Alberta and Southern Gas Co. Ltd. - Extension of Licence

In November 1987, Alberta and Southern applied to vary Licence GL-99, which authorizes the export of natural gas to Pacific Gas Transmission for resale to Pacific Gas and Electric Company in northern California. The company asked for a 16-year extension of the term of the licence, from 1994 to 2010, and an increase of 169.3 billion cubic metres (6.0 trillion cubic feet) in the total volume to be exported. This application supersedes an application made by the company in 1985.

The Board held a public hearing in Calgary in December 1988 and expects to release its decision in the spring of 1989.

Licences In Support of the TransCanada 1989 Facilities Application

During 1988, the Board received a number of applications for new export licences or amendments to existing licences. These licences would support the facilities requested by TransCanada in an application dated 28 July 1988 for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec. (Please see *Pipeline Facilities* section.)

Details of the applications follow.

- a. Canterra Energy Ltd., dated 13 September 1988
Norcen Energy Resources Ltd., dated 14 September 1988
Poco Petroleum Ltd., dated 15 September 1988
Shell Canada Ltd., dated 14 September 1988
Western Gas Marketing Limited, dated 15 September 1988

The companies are proposing to export a total of up to 22 billion cubic metres (0.77 trillion cubic feet) of natural gas to the Consumers Power Company and Midland Cogeneration Venture Limited Partnership of Michigan. The exports would take place at Emerson, Manitoba over a 16-year period between 1988 and 2005.

- b. Vector Energy Inc., dated 29 August 1988

Vector proposes exporting up to 380 million cubic metres (13.4 billion cubic feet) per year over a 20-year period between 1989 and 2009. The gas would be sold to Altresco Inc. of Denver, Colorado, for a proposed cogeneration facility in Pittsfield, Massachusetts.

- c. Direct Energy Marketing Limited, dated 12 October 1988

Direct Energy plans to export up to 936 million cubic metres (33 billion cubic feet) over 15 years, beginning November 1989. The gas would be sold to Consolidated Fuels, which would use the gas to fuel the Arrowhead cogeneration facility to be constructed in East Georgia, Vermont. Direct Energy requested in January 1989 that consideration of its application be deferred.

The Board held a public hearing on these applications in Calgary in January 1989.

Western Gas Marketing Limited/ProGas Limited - Extension of Licences

The Board received applications from Western Gas Marketing, dated 16 September 1988, and ProGas, dated 28 October 1988, to export natural gas to the United States.

Western Gas Marketing requested that the term of its Licence GL-83, which authorizes natural gas exports to Boundary Gas Inc., be extended from November 1996 to January 2003. The exports take place at Niagara Falls, Ontario.

ProGas requested that its Licence GL-98, which authorizes exports to four American interstate pipeline companies serving the American midwest and northeast, be extended by six years, from 1994 to 2000. The amendment would permit 33.48 billion cubic metres (1.18 trillion cubic feet) to be exported during the extended term of the licence.

The Board set these applications down for public hearing immediately following the conclusion of the hearing with respect to the applications supporting TransCanada's 1989 facilities application. (Refer to above application.)

Electricity Exports

Hydro-Québec - Export to New England Utilities

In August 1987, Hydro-Québec filed an application for a licence to export 70 terawatt hours of firm energy to New England Utilities for a period of 10 to 14 years starting in 1990.

This application was made following the denial by the Board of an earlier, similar application by Hydro-Québec on the grounds that the evidence presented by Hydro-Québec was insufficient to demonstrate

- that the energy proposed to be exported was surplus to reasonably foreseeable Canadian requirements for use in Canada; and
- that the export price was not less than the price to Canadians for equivalent service in related areas.

Hydro-Québec had failed to first offer the electricity to its neighbouring utilities in Ontario, New Brunswick and Newfoundland in accordance with the normal practice, and did not provide any other evidence sufficient to satisfy the Board that the energy proposed to be exported was surplus to Canadian needs and that the price was just and reasonable in relation to the public interest.

In its new application, Hydro-Québec stated that, in compliance with the Board's earlier decision, it had offered the energy proposed to be exported to directly interconnected Canadian utilities.

A public hearing into the application was held during December 1987. In January 1988, the Board released its decision to approve the requested licence.

Maine and New Brunswick Electrical Power Company - Export to Maine Public Service Company

By application dated 17 September 1987, Maine and New Brunswick Electrical Power Company requested a licence to export 37 megawatts of firm power and 200 gigawatt hours of energy in any consecutive 12-month period over a 20-year period to its parent company, Maine Public Service Company of Presque Isle, Maine.

The Board held a hearing in Saint John, New Brunswick in March and released its Reasons for Decision in June 1988 approving the requested licence.

Hydro-Québec - Export to the Vermont Joint Owners

By application dated 29 June 1987, Hydro-Québec requested a licence to export up to 50 megawatts of firm power and 438 gigawatt hours of firm energy to the Vermont Joint Owners for the period 1 March 1988 to 31 October 1990.

The Board held a public hearing on the application in January 1988 and released its decisions to grant the licence in the same month.

British Columbia Hydro and Power Authority - Extension of Licence

By application dated 10 August 1988, B.C. Hydro requested that the term of its Licence EL-162, issued in 1984, be extended beyond 30 September 1988. B.C. Hydro did not ask for any particular duration of the extension. Because of specific changed circumstances since the licence was first issued, the Board is considering the application as an application for review under subsection 21(1) (formerly subsection 17(1)) of the *Act*. The Board is also treating the application as a request for an extension to 30 September 1990, the date requested in the original 1983 application.

In order to allow sufficient time for the review to be conducted, the Board extended the termination date of the licence by six months, to 31 March 1989.

With respect to the conduct of the review, the Board decided to hold a hearing beginning 6 March 1989.

Hydro-Québec - Extension of Licence

By application dated 27 October 1988, Hydro-Québec requested an amendment to Licence EL-96 to extend the term of the licence by seven years, from 1991 to 1998.

In December the Board notified the company that the application would be treated as a request for a new licence and that a public hearing would be held. Hydro-Québec was also informed that additional information in support of its application would have to be filed.

Pipeline Facilities¹

TransCanada PipeLines Limited - 1988/1989 Facilities and Toll Design

In June 1987, TransCanada PipeLines Limited filed an application, later revised several times, for approval to expand its pipeline system in central Canada in order to increase natural gas deliveries to Ontario, Quebec and to the northeastern United States.

The deliveries destined for the United States would be made under licences issued by the Board to Western Gas Marketing Ltd., ProGas Limited, KannGaz Producers Ltd., and the Alberta Northeast Gas, Limited consortium (ANE). ProGas' exports would be made to the Ocean State Power cogeneration project in Rhode Island. All exports would take place at Niagara Falls or Iroquois, Ontario.

The requested facilities, estimated to cost \$335 million, included the construction of four sections of pipeline parallel to the existing pipeline, totalling 65 kilometres, near Niagara Falls and Sarnia, Ontario and St. Jean-sur-Richelieu, Quebec, and two sections of new pipeline, totalling 35 kilometres, near Hamilton and Iroquois, Ontario. The expansion also included the construction of new meter and compressor stations and the installation, relocation or upgrading of compressor units and aftercoolers.

TransCanada also requested that the present method of cost allocation and toll design for export sales and transportation services be applied to the cost allocation and toll design of the applied-for facilities.

A hearing on this application was held between November 1987 and February 1988.

¹ Includes toll design, where applicable.

In a second application, dated 29 March 1988, TransCanada applied to advance from 1 November 1989 to a date as early as 1 November 1988 the construction of certain facilities which had been applied for in the June 1987 application, and to construct new facilities that had not been addressed in the earlier application. The new facilities included a 19-kilometre section of pipeline parallel to the existing pipeline near Cornwall, Ontario, and the temporary relocation of two portable compressor units. These facilities were estimated to cost \$21 million. The new facilities and the earlier start-up dates were required to provide increased gas transportation service requested by The Consumers' Gas Company Ltd. and Gaz Métropolitain, inc..

On 31 May 1988, the Board issued its decision on those facilities required to be in service by 1 November 1988 and on the related toll and tariff matters. This decision was issued early in view of the timing constraints related to the 1988 construction season.

The Board approved the construction of three sections of pipeline parallel to the existing pipeline, totalling 49 kilometres, near Sarnia and Niagara Falls, Ontario and St. Jean-sur-Richelieu, Quebec, the installation of new aftercoolers, the upgrading of a number of existing compressor units, and the relocation of three other compressor units.

In view of concerns regarding financing and the timely and cost-effective construction of the Ocean State Power project, the Board also decided to give its assurance that it was prepared to recommend approval by Governor in Council of the facilities required to serve those exports.

A proposed 19-kilometre section of parallel pipeline near Cornwall was deferred until TransCanada had filed evidence that it had notified all affected landowners. After receiving this notification, the Board approved the construction of this section of pipeline in June 1988.

The Board's decision on the remainder of the project was issued in August 1988. The Board approved the construction of two sections of pipeline, 12.8 kilometres and 3.5 kilometres long, parallel to the existing pipeline near Niagara Falls and a 30.9-kilometre section of new pipeline near Hamilton. The Board also approved the installation of six compressor units in Manitoba and Ontario.

The Board decided not to recommend to the Governor in Council the issuance of a certificate for a 4.5-kilometre section of new pipeline near Iroquois and the installation of related compressors for the transport of natural gas to be exported by

Alberta Northeast Gas, Limited. The Board determined that the regulatory process in the United States would not be concluded in time to enable the American portion of the ANE/Iroquois project to achieve its projected start-up date of 1 November 1989.

The Board also decided that the toll methodology for the approved facilities would be the "rolled-in" method, as requested by the company, and that an additional toll would be collected from shippers requiring a delivery pressure above 4 000 kilopascals.

A number of decisions related to TransCanada's tariff were also made, including, with respect to access to the pipeline, the deletion of the "bumping" proviso and the establishment of an equitable "queuing" procedure. The Board also agreed with TransCanada's proposal to delete from its tariff the stipulation that additional facilities would not be built for the purpose of providing short-term firm service.

The Board also determined that, in moving towards deregulated natural gas markets, TransCanada was making progress in becoming an open access pipeline. However, as prospective shippers are entitled to know the conditions of access to a pipeline system prior to contract negotiations, the Board directed TransCanada to stipulate in its tariff *all* terms and conditions governing access to its pipeline system.

Subsequent to these decisions being made by the Board, TransCanada filed an application in July 1988 for new facilities to increase the capacity of its pipeline system to serve expanding domestic and export markets to a greater degree than proposed in the June 1987 and March 1988 applications. (See below)

On 9 June 1988, Cyanamid Canada Pipeline Inc. applied for a review of that part of the Board's 31 May 1988 decision that provides that renewal rights for contracts on TransCanada's pipeline system shall be subject to TransCanada's receiving written notice from the shipper not less than six months prior to the expiration of the contract or such lesser period as TransCanada may stipulate.

The Board denied the application in June 1988.

On 10 November 1988, Union Gas asked the Board to review its July 1988 decision on the facilities to be built by TransCanada. Specifically, Union requested that TransCanada be required to satisfy the Board that the construction of its Kirkwall Line near Hamilton, Ontario would not duplicate facilities already existing on the Union system. Union also requested that the certificate

issued to TransCanada authorizing the Kirkwall Line be amended by adding a condition requiring TransCanada not to begin construction until the Board disposes of Union's application.

On 17 November, the Board issued its decision, denying Union's application.

TransCanada PipeLines Limited - 1989/90 Facilities

TransCanada filed an application dated 28 July 1988 for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec in order to increase its capacity to serve expanding domestic and export markets.

The expansion included the construction of 21 sections of pipeline, totalling 320 kilometres, parallel to the existing line, the installation of eight new compressors at existing compressor stations, the upgrading of five compressors, and modifications to three existing compressors.

TransCanada estimated the facilities would cost \$555 million and stated they would be required by 1 November 1989 in order to meet the projected sales and transportation requirements of existing contracts and to provide new services in the domestic and export markets. The facilities would also provide advance capacity to accommodate new firm services expected in the future.

A hearing was held on this application in October and November 1988.

In December 1988, the Board issued its decision early with Reasons for Decision to follow in the new year.

Releasing of the decision early was to allow TransCanada to proceed with a cost-effective winter construction plan; to provide the necessary lead time for compressor and pipe procurement; and to address concerns regarding the financing requirements of the Northland Power and Ocean State Power projects.

Following Governor in Council approval, the Board issued three certificates of public convenience and necessity for the applied-for facilities. Furthermore, the Board indicated that it would recommend to the Governor in Council the revocation of Certificate GC-71 in respect of six 12.5-MW compressor units.

Trans Mountain Pipe Line Company Ltd. - Facilities and Toll Design

In September 1987, Trans Mountain filed an application for approval of a major expansion of its pipeline system in British Columbia and Alberta, the related toll design for the expanded system, and refinements proposed to the existing toll design.

The company proposed to carry out its expansion in two stages. The Stage 1 facilities were to allow Trans Mountain to transport increasing volumes of heavy crude oil while it continued to meet its commitments to supply light crude oil to Vancouver refineries and refined products to Kamloops. The applied-for facilities included additional tankage at Edmonton and Burnaby, two new pump stations, and extensive additions and modifications to seven existing pump stations. Trans Mountain projected that the facilities would be completed in late 1989, at a cost of some \$57 million.

The Stage 2 facilities were to accommodate the possible shipment of other products, such as methanol or methyl tertiary butyl ether which is used to increase the octane level in motor gasoline. These facilities would be undertaken only when there is reasonable assurance that the shipments will materialize. The Stage 2 facilities, expected to cost some \$27 million, include the construction of three new pump stations and the reactivation of two idle loops, each 762 millimetres in diameter, totalling 82 kilometres in length.

The hearing began in Vancouver in February 1988. That sitting lasted 10 days. Final argument was heard in Ottawa on 29 February and 1 March 1988.

The hearing was reconvened in Burnaby from 11 to 14 April 1988 in order to obtain evidence on the socio-economic and environmental concerns raised by certain intervenors. The record closed on 24 May 1988.

The Board issued its Reasons for Decision in August 1988, approving the Stage 1 facilities but not the Stage 2 facilities. (Please refer to *Legal Matters*).

The Board also approved Trans Mountain's proposal to include the capital and operating costs of the Stage 1 facilities in a common rate base and revenue requirement.

The Board also made a number of decisions on toll design, including the method to be used in determining capacity surcharges for heavy crude oil.

In September, the Burnaby Citizens for Environmental Protection requested the Board to review and stay its decision authorizing the expansion of the pipeline facilities.

The Board issued its decision in December, denying the application.

St. Clair Pipelines Ltd./TransCanada PipeLines Limited - Facilities

By application dated 15 June 1988, St. Clair Pipelines Ltd. requested approval to build a 700-metre pipeline under the St. Clair River near Sarnia, Ontario. The new pipeline would link the storage and transmission facilities of two pipeline companies, Union Gas Limited in Ontario and Michigan Consolidated Gas Company in Michigan. It would be 610 millimetres (24 inches) in diameter. In its application, St. Clair stated that the link would also increase accessibility to supplies of competitively priced American gas and provide access to Michigan Consolidated's underground storage facilities.

By application dated 25 August 1988, TransCanada PipeLines Limited filed an application as an alternative to St. Clair's proposal. TransCanada proposed to build a 3.3-kilometre loop of its existing pipeline near its connection to Union Gas.

Both applications were considered at a hearing held in September 1988.

The Board released its Reasons for Decision in November 1988. The Board approved St. Clair's application and denied TransCanada's application.

Tolls and Tariffs

TransCanada PipeLines Limited - 1988 Tolls

On 21 December 1987, TransCanada PipeLines Limited filed an application for 1988 tolls and at the same time applied for an interim toll order to be effective 1 January 1988. On 20 January 1988, the Board set the level of interim tolls at 10 percent below the 1987 level.

The Board informed TransCanada that the public hearing on the application would be held in two phases. Phase I would deal with toll design and tariff issues including self-displacement by distributors. Phase II would deal with cost of service issues and any remaining tariff matters.

Phase I of the hearing began on 16 May 1988 in Ottawa and ended 13 September, for a total of 54 sitting days. On 17 June, the Board

issued its decision on one issue considered at the hearing, the disposition of the balances in deferral accounts as of 31 December 1987 and related carrying charges. The Board decided that the balances, totalling a net credit of some \$76 million, were to be applied to reduce the revenue requirement during the six-month period beginning 1 July 1988. Consequently, the Board reduced the new interim tolls by a further 30 percent, effective 1 July.

With the expiry of the credit arising from the deferral accounts by the end of 1988, the Board established new interim tolls to be effective 1 January 1989. The new tolls were 23 percent higher than the prevailing interim tolls and were based on TransCanada's 1989 forecast revenue requirement adjusted to reflect the last approved rate of return.

The Board released its decisions and Reasons for Decision on the remaining issues of Phase I on 5 January 1989. A key decision was the lifting of the prohibition on "self-displacement", that is, the transportation of any gas purchased by distributors to displace gas they were taking from TransCanada.

Phase II of the hearing began 9 January 1989 in Calgary.

Foothills Pipe Lines (Yukon) Ltd. - Tariff

In June 1987, Foothills applied for amendments to its natural gas transportation tariff to allow for the introduction of interruptible service. The Board held a public hearing in Ottawa during October 1987.

In December 1987, the Board approved a request from Foothills for an interim order permitting the company to establish interruptible service on the Saskatchewan segment of its pipeline system (Zone 9) at the rate and under the terms and conditions contained in its application. In January 1988, the Board released its Reasons for Decision authorizing Foothills to offer two tiers of interruptible service in Saskatchewan. The toll for Tier-1, having a higher priority than Tier-2, was set at \$3.065 per thousand cubic metres per hundred kilometres based on 90 percent load factor, and the toll for Tier-2 at \$2.759 based on 100 percent load factor.

Trans Québec & Maritimes Pipeline Inc. - Tolls

On 7 July 1988, TQM applied for new tolls for the transportation of natural gas for a two-year test period, effective 1 January 1989. TQM requested approval of a monthly toll of \$5.945 million in 1989 and \$5.858 million in 1990. The previously approved toll was \$6.038 million. The company also requested a rate of return on equity of 14.5 percent in 1989 and 14.75 percent in 1990 based

on a deferred common equity ratio of 25 percent. In its application, TQM sought to have the common equity ratio increased to 30 percent effective November 1990. The previously approved rate of return on equity was 13.75 percent on a deemed equity ratio of 25 percent.

The oral portion of the hearing, which dealt with evidence on rate of return matters and which included argument and reply on all matters, was held in November. Evidence on issues other than rate of return was dealt with by written submissions.

In December, the Board released its decision with Reasons for Decision to follow in the new year. The Board authorized a monthly toll of \$5.886 million commencing 1 January 1989 and a monthly toll of \$5.776 million commencing 1 January 1990. The Board denied TQM's request for a higher rate of return and common equity ratio for both 1989 and 1990. The authorized return remains at 13.75 percent with a common equity ratio of 25 percent.

North Canadian Oils Limited - Access to Foothills Pipeline

By application dated 17 August 1988, North Canadian Oils requested the Board to issue an order under section 71(2) (formerly 59(2)) of the *Act*, requiring Foothills Pipe Lines (Yukon) Ltd. to provide firm service to North Canadian Oils on the Foothills pipeline system in Saskatchewan.

On 16 December, North Canadian Oils filed another application, under section 71(3) (formerly 59(3)) of the *Act*, for an order requiring Foothills to provide the necessary facilities to receive, transmit and deliver the gas offered by North Canadian Oils to Foothills.

A hearing on the applications began 13 February 1989.

Inquiries

Interprovincial Pipe Line Limited - Camrose, Alberta Accident

In late 1986, the Board commenced a review of its decision to adopt recommendation 5.9 made by the Board's panel which investigated a fatal accident in 1985 on Interprovincial's pipeline near Camrose, Alberta. The recommendation required pipeline companies under Board jurisdiction to remove all fillet welds¹ made on liquid filled pipelines in certain circumstances and to check the soundness of a sample of fillet welds in others.

¹ A fillet weld is a type of weld necessary to attach a sleeve or fitting around a pipe.

On 22 July 1988, the Board informed industry that it agreed with a two-phase process of review suggested by industry. The first phase consists of a program of inspection or sampling with the intent of gathering evidence for the review. The evidence was due to be filed by the companies by 31 December 1988. The second phase will consist of a review of the recommendation in view of the new evidence; the Board has reserved its decision on whether to hold a public hearing for this purpose.

In a related matter, the Board invited industry to submit comments on the eleven other recommendations in the inquiry panel's report. On 22 January, 14 April and 22 July 1988, after having reviewed industry's comments, the Board made a number of decisions in respect of each of the other 11 recommendations, proposed amendments to the applicable Canadian Standards Association pipeline standards and is in the process of amending its Onshore Pipeline Regulations.

Other Board Activities

Oil

In 1988, 125 orders were issued for the export of crude oil and petroleum products. The Board receives monthly data from the industry on export volumes and prices for crude oil and petroleum products. The statistics are analyzed and compiled, and consolidated reports are issued to the industry and other interested parties. The Board also publishes annual reports for crude oil and petroleum products covering export activities for the year as a whole.

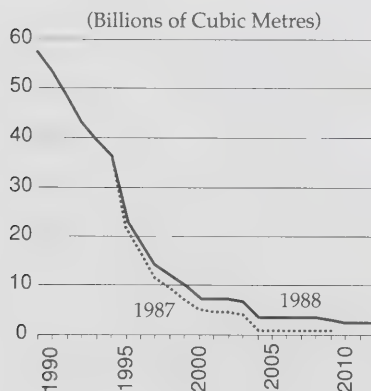
Natural Gas

The Board approved 91 short-term natural gas export orders in 1988. It also approved two¹ new licences and two licence amendments during the year (see Figure 20 and Gas Appendix 4).

During 1988, the Board ensured that natural gas export transactions complied with licence terms and approved contractual arrangements. It collected and published monthly data on export prices, sales, and associated transportation costs which were used by a committee of officials of federal and producing-province governments to assess export prices against domestic prices.

The Board published a new report assessing domestic natural gas markets (see *Energy Studies*).

Figure 20
Export Licence Authorizations
at Year-End



¹ New Licence GL-106 amends and replaces Licence GL-96.

Propane and Butanes

During 1988, the Board continued to monitor exports of propane and butanes. In this connection, the Board authorized 43 short-term export orders for propane. Of these, two were issued to companies which became exporters for the first time, while three companies did not renew their orders. Butane export orders totalled 39, including two new exporters, but five companies allowed their orders to lapse.

Ethane

For purposes of export regulation, ethane is subject to the same criteria as natural gas. No licences or orders were issued for the export of ethane during 1988.

Electricity

New Electricity Export Policy

In September, the Minister of Energy, Mines and Resources announced a new policy regarding the regulation of electricity exports and international power lines. The objective of the new policy was to simplify and reduce regulatory requirements for electricity exports and international power lines.

Under the new policy, applicants will normally receive authorization for their proposal in the form of an NEB permit. A permit will not require a public hearing; nor will it require Governor in Council approval. However, if there is any reason to believe that the proposal may not be in the Canadian public interest, the Governor in Council, on the advice of the Board, may require that a public hearing be held.

Regulation by the government of Canada will concentrate primarily on those aspects of a proposal that may not have been sufficiently dealt with by provincial regulatory practices and procedures, in order to ensure specifically that:

- export and international power line proposals do not have unacceptable environmental or other impacts outside of the sponsoring province, and
- Canadians wishing to purchase electricity to serve their own domestic requirements are given fair market access to electricity at prices no higher than the price being offered to export customers for electricity being proposed for export.

The Minister asked the Board to implement this policy to the maximum extent consistent with the existing *Act* during the

transition period leading up to the time when new legislation comes into effect.

In December, the Board issued a memorandum of guidance informing interested parties of the steps that will be followed to implement the new policy.

Full implementation of the policy will require amendments to the *National Energy Board Act*. However, until the *Act* is amended, the Board proposed modifications to its rules and regulations. Since these amendments will take some time to implement, the Board decided to make a number of changes on its own immediately.

The memorandum of guidance specified the requirements and procedures for electricity exports and international power lines which are to be implemented in three phases.

Effective immediately, the information requirements for export licences and power line certificates were changed as follows:

- Detailed information requirements concerning surplus were replaced with the general requirement that exporters provide evidence to demonstrate that proposed exports are surplus to Canadian needs.
- Many of the Board's remaining information requirements for export applications were replaced with the requirements contained in the new electricity policy document.
- The Board adopted the fair market access concept of the

"Regulation by the government of Canada will concentrate primarily on those aspects of a proposal that may not have been sufficiently dealt with by provincial practices and procedures,..."

new policy to assist it in satisfying itself that exports are in the public interest. If they wish, exporters will be able to comply with the second price criterion by indicating that they have adhered to the concept of fair market access instead of having to offer the electricity proposed for export to interconnected Canadian utilities. Until the regulations are changed, the first and second price criteria, which currently must be satisfied, will remain in place. However, as part of the package of amendments implementing the Canada-United States Free Trade Agreement, the third price criterion was recently revoked.

- The existing information requirements for certificates, set out in the NEB Rules of Practice and Procedure, were replaced

with the information requirements for international power lines contained in the electricity policy document.

When the amendments to the regulations are approved by the Governor in Council, as provided by the new policy, the Board will continue to use the fair market access policy to assist it in satisfying itself that exports are in the public interest.

A further change which will be implemented when the regulations are changed is the removal of any limit on the quantity of electricity which can be exported by order, without a public hearing, for periods of up to three years. At present, exports under order are limited to 60 000 kilowatts and 400 gigawatt hours, and for interruptible exports and exchanges, to 1000 gigawatt hours.

For full implementation, amendments to the *Act* will be required to provide for:

- the authorization of exports and of the construction and operation of international power lines by issuance of permits, without public hearings, unless applications are designated for licensing and certification by the Governor in Council,
- the process to be followed when exports and international power line applications are designated for licensing and certification,
- changes to detailed routing and land acquisition procedures for international power lines.

Interprovincial Trade in Electricity

In September 1988, the Minister of Energy, Mines and Resources asked the Board to identify and examine adequate measures to permit interprovincial trade in electricity to grow, to encourage greater cooperation between utilities, and to give to buyers and sellers of electricity commercial access to transmission capacity across intervening provinces.

At year-end the Board was considering how best to deal with this matter.

Other Electrical Activities

In February 1988, B.C. Hydro applied to the Board to review the Board's decision of July 1984 restricting the export of energy generated at the Burrard plant. Following a review, the Board

approved the application and amended certain conditions of Licences EL-162 and EL-163 that pertain to the operations of the Burrard plant.

During the year, the Board continued to act in its advisory role, informing the Minister of the status of electricity exports. The Board also continued to consult with and contribute to other government departments and industry groups in both Canada and the United States which coordinate the operation of electric power utilities throughout North America.

Board staff provided advice to assist Environment Canada - Parks in dealing with an application by Newfoundland and Labrador Hydro to construct a 138-kV transmission line in Gros Morne National Park in Newfoundland. Also, staff continued work and consultations with industry on its CANEBEX-5 computer model which calculates the economic benefits of economy energy transactions among up to five power systems.

Energy Studies

In December 1988, the Board released two major staff studies prepared as part of the ongoing monitoring of the energy scene for which the Board is responsible in connection with its regulation of energy exports and its advisory functions. One is *Canadian Energy Supply and Demand 1987-2005*, dated September 1988, which updates an earlier study published in 1986. The second is *Natural Gas Market Assessment*, dated October 1988, which is the first of a series which the Board will publish from time to time. It was announced in the July 1987 decision in which the Board adopted its market-based procedure for assessing natural gas export applications.

Canadian Energy Supply and Demand 1987-2005

This study projects the Canadian supply of all major energy commodities, including electricity, oil and natural gas, and their by-products, and the demand for Canadian energy in Canada and abroad. Board staff prepared preliminary assumptions and results, consulted with provincial governments, industry associations, companies and other interested parties, and, in light of these consultations, developed the projections used.

The analysis in the report was conducted under two scenarios of economic growth and energy prices. In the high case, economic growth averages about three percent per year and crude oil prices are assumed to increase to U.S. \$30 (1987 dollars) per barrel by 2000 and remain unchanged in real terms after that. In the low case, economic growth averages only two percent per year and

crude oil prices increase much more slowly, to U.S. \$20 (1987 dollars) per barrel by 2005.

The report states that prices are likely to fluctuate substantially from year to year but are unlikely to remain outside the projected range for sustained periods of time. It also notes that the actual path of oil prices could be a composite of the two projections, for example, close to the low path in the earlier years but drifting up over time toward the higher path.

The major findings of the study are:

- The projections of western Canadian natural gas and oil supply are both higher than in 1986, as is frontier oil supply. For the first time, frontier gas supply is included.
- The report projects that domestic energy demand will grow more slowly than economic growth as a result of continuing energy conservation and technological progress. The use of alternative energy forms including wood, wood wastes, and wind and solar power will also increase, but their share of total energy use declines marginally in both cases, given the relatively low prices of fossil fuels and electricity.
- While the report projects growing net exports of coal, electricity, natural gas, and natural gas liquids (propane, butanes and ethane), continued net exports of crude oil and oil products depend on economic growth and oil prices.
- In both cases, Canada is projected to continue exporting heavy crude oil throughout the study period. In the high case, net exports of crude oil and oil products increase substantially, but in the low case, Canada needs large quantities of imported light crude oil and oil products.
- In both scenarios, natural gas supplies are adequate to meet increasing domestic requirements and also to provide for higher exports, but at increasingly higher prices. Fieldgate natural gas prices in Alberta are projected in the high case to more than double in real terms by 2005. Low case natural gas prices increase more slowly, to about 70 percent of the high case level projected for 2005.

The report projects adequate natural gas supplies at higher prices and the need for substantial new electricity generating capacity. Continued net exports of oil depend on economic growth and oil prices.

-
- In spite of incentives to encourage users of electricity to reduce demand, the report projects the need for substantial construction of new electricity generating plants to meet both domestic and export demand. It expects a growing percentage of our electricity exports to be firm, rather than interruptible. The report also suggests that increased interprovincial cooperation could result in more hydroelectric development, displacing some nuclear and fossil fuel-fired generation.
 - Coal production is projected to increase over the review period, as a result of increasing domestic demand for thermal generation of electricity, and higher coal export levels.

Natural Gas Market Assessment

This report provides both an assessment of the functioning of the Canadian natural gas market and a review of the short-term outlook for the supply and demand for Canadian natural gas.

The report describes in detail the structure and functioning of the Canadian natural gas market, focussing on the period since the Agreement on Natural Gas Markets and Prices was signed on 31 October 1985. The study makes a number of observations regarding changes that have occurred in the Canadian natural gas market since late 1985:

- Producers now have a wider range of market opportunities while end-users can choose from a wider variety of supply options.

"The report concludes that limited pipeline capacity may pose the most serious concern in the near term."

- The number of gas producers selling directly to end-users has increased dramatically. This has generated strong competition in some markets for natural gas, which, together with lower oil prices, has resulted in a large decline in wellhead prices.

- On average, Canadians have been paying prices generally no greater than those paid by export customers.
- High-volume industrial customers have received substantial price reductions over the past two years and have fully benefitted from competitive pricing at the wellhead.

- Prices to other end-users have fallen, but to a lesser extent.
- A degree of flexibility exists in the market today which, to many, was unthinkable just a few years ago.

With respect to the outlook for supply and demand, the report concludes that the excess supply that has characterized the market in recent years is diminishing. However, annual productive capacity will continue to exceed annual demand over the next few years, although the excess may be small on a peak day basis.

The report concludes that limited pipeline capacity may pose the most serious concern in the near term. Limited capacity on both the NOVA Corporation of Alberta pipeline and the central section of the TransCanada system could result in interruptions of service to customers relying on interruptible service. It may also limit opportunities for expanded export sales to most American markets in the near term. Service to residential and small commercial users, who rely on firm service, is expected to continue without interruption.

The report also provides considerable information on the evolution of the natural gas industry and the current status of regulation in Canada.

Pipeline Activities

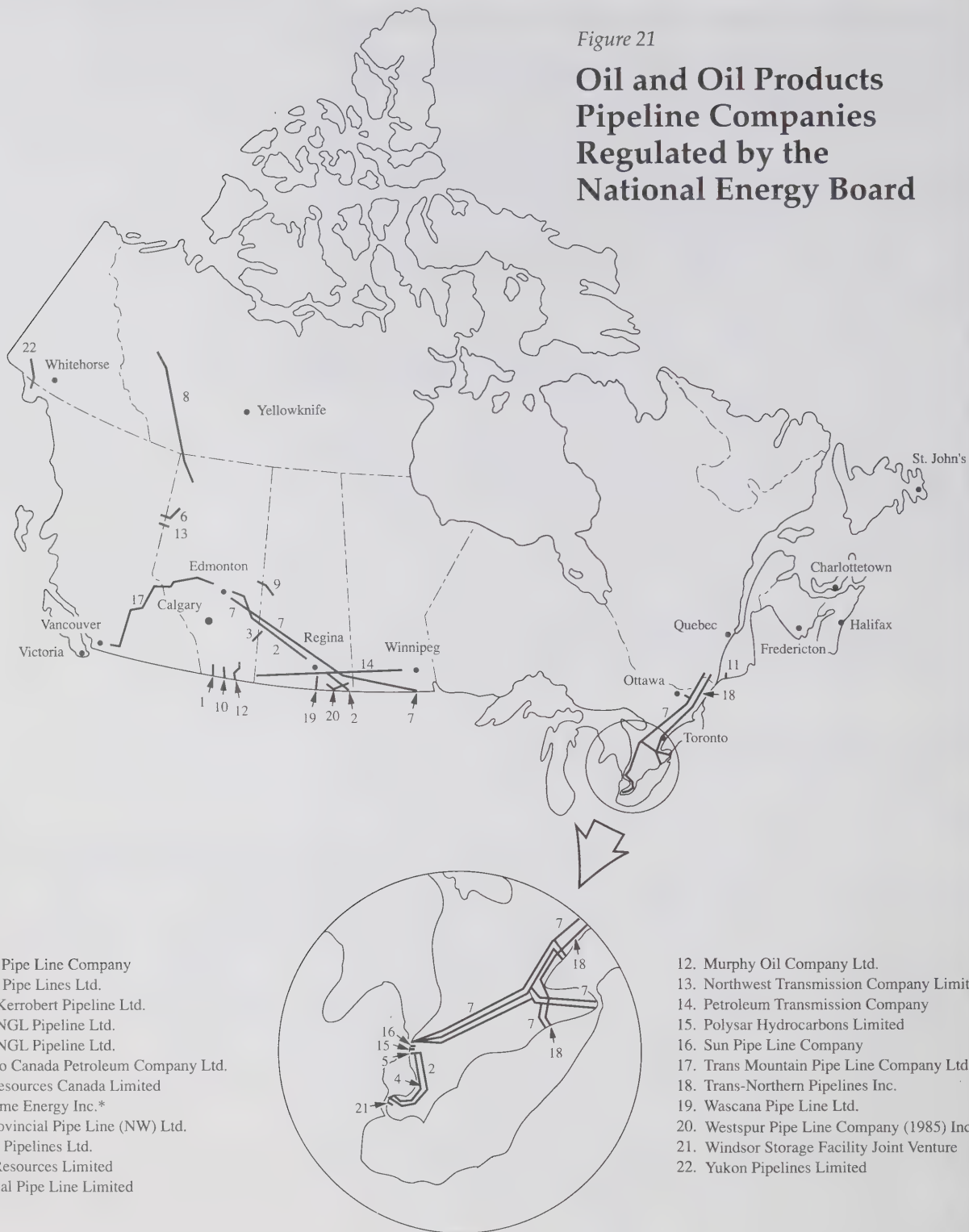
The Board regulates 46 gas, oil and products pipeline companies. These pipeline systems are shown in Figures 21 and 22.

All new pipeline facilities must be authorized by the Board prior to their construction. The Board is responsible for monitoring the construction, operation and abandonment of pipeline facilities as well as protection of the environment to ensure compliance with the Board's safety and environmental regulations and any specific conditions of the approving order or certificate. In addition, the Board reviews construction and operation costs to ensure that tollpayers receive cost-efficient service. The orders and certificates issued during 1988 approving new pipeline facilities are listed in Oil and Gas Appendices 1, 2 and 3. Certificates are issued for new pipelines longer than 40 kilometres, if they are approved by the Board after it holds a public hearing, as required by the *Act*. All certificates must be approved by the Governor in Council.

During the past several years the Board has undertaken the task of reviewing, consolidating and improving the Oil Pipeline Regulations and the Gas Pipeline Regulations, which resulted in

Figure 21

Oil and Oil Products Pipeline Companies Regulated by the National Energy Board



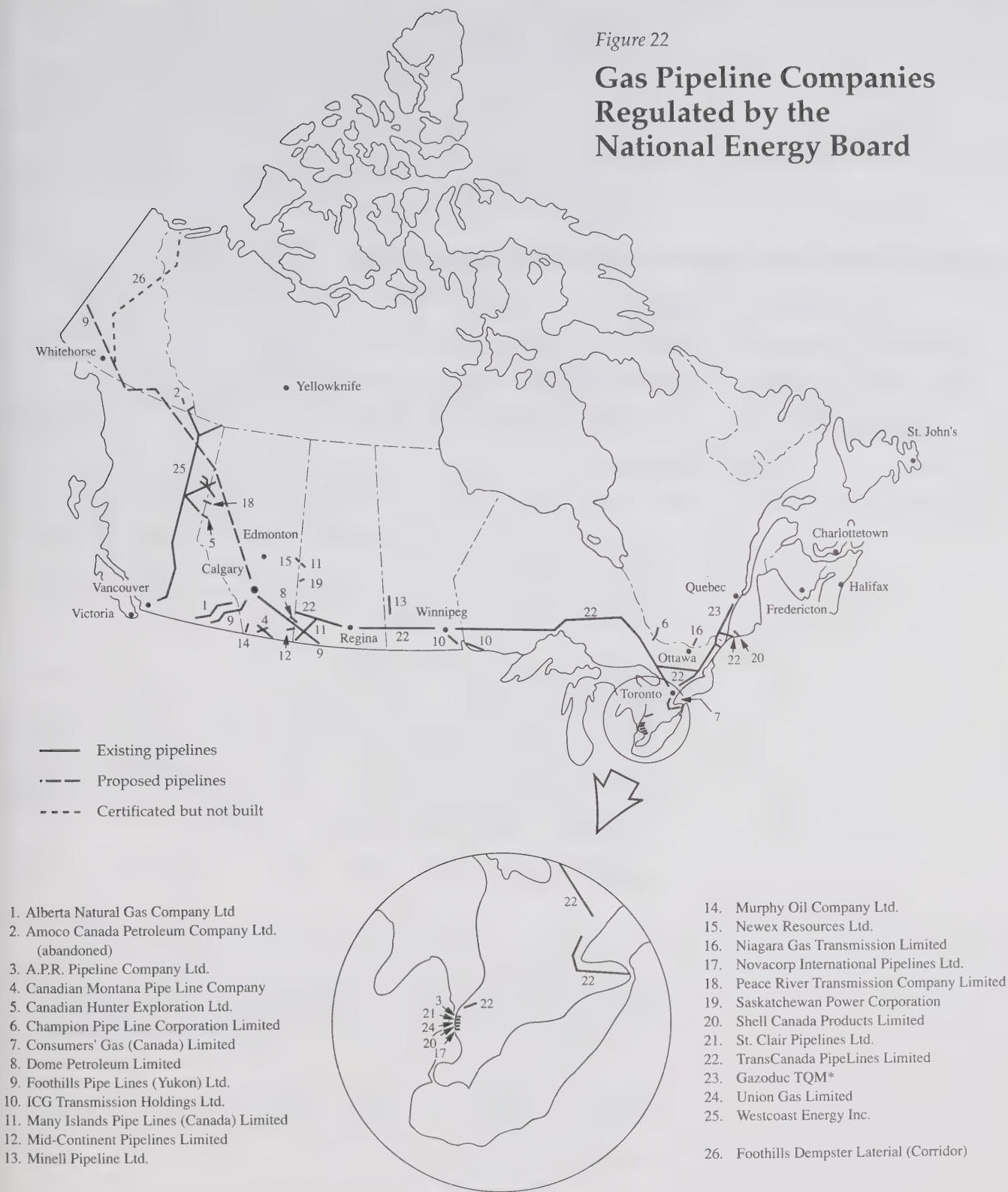
1. Aurora Pipe Line Company
2. Cochin Pipe Lines Ltd.
3. Dome Kerrobert Pipeline Ltd.
4. Dome NGL Pipeline Ltd.
5. Dome NGL Pipeline Ltd.
Amoco Canada Petroleum Company Ltd.
6. Esso Resources Canada Limited
7. Interhome Energy Inc.*
8. Interprovincial Pipe Line (NW) Ltd.
9. Manito Pipelines Ltd.
10. Mont Resources Limited
11. Montreal Pipe Line Limited

12. Murphy Oil Company Ltd.
13. Northwest Transmission Company Limited
14. Petroleum Transmission Company
15. Polysar Hydrocarbons Limited
16. Sun Pipe Line Company
17. Trans Mountain Pipe Line Company Ltd.
18. Trans-Northern Pipelines Inc.
19. Wascana Pipe Line Ltd.
20. Westspur Pipe Line Company (1985) Inc.
21. Windsor Storage Facility Joint Venture
22. Yukon Pipelines Limited

* On 5 May 1988, Interprovincial Pipe Line Limited changed its corporate name to Interhome Energy Inc.. However, the pipeline operations are being conducted under the business name Interprovincial Pipe Line Company, a division of Interhome Energy Inc.

Figure 22

Gas Pipeline Companies Regulated by the National Energy Board



* In December, Trans Québec & Maritimes Pipeline Inc. informed the Board that it had changed its name to Gazoduc TQM.

the production of the new Onshore Pipeline Regulations. The process included a number of meetings with an industry consultative task force to ensure that industry views would be reflected in the new regulations. In August, the Governor in Council approved the Board's new Onshore Pipeline Regulations which came into effect on 1 September 1988. At the same time, the Board developed draft Offshore Pipeline Regulations which it issued to industry for comment in November.

"The Board has increased its participation in CSA activities so that it is now represented on some 23 committees, sub-committees and task forces."

The new Onshore Pipeline Regulations place a greater emphasis on the Canadian Standards Association (CSA) standards as the accepted criteria for the design, operation, maintenance and abandonment of oil and gas pipelines. Because of this, the Board has increased its participation in CSA activities so that it is now

represented on some 23 committees, sub-committees and task forces. By participating in the review, revision and development of CSA standards, the Board ensures that its views are known when changes are proposed.

As part of the Board's regulatory responsibilities, the Board has been monitoring and reviewing the work of the Canadian Pipeline Industry Committee which was formed to review and comment on the findings of the Board's inquiry into the 1985 pipeline accident near Camrose, Alberta. The results of this work will lead to important revisions to the Board's Onshore Pipeline Regulations and the applicable CSA codes.

Routine Inspection

Since February 1987, the Board's inspectors have had the responsibility of administering and enforcing Part IV of the *Canada Labour Code* within the pipeline industry that is under the Board's jurisdiction. During the past year, the Board's inspectors visited 17 companies under the Board's jurisdiction and inspected a total of 236 facilities. Most of these inspections combined the Board's own facilities inspections with Labour Canada's workplace occupational safety and health inspections.

Pipeline Incidents

The Board requires detailed reports of all incidents involving personal injury or fatality, pipeline malfunctions such as leaks, breaks, fires, or explosions, or any other event which results in a loss of service of a pipeline under its jurisdiction. The Board

conducts public inquiries, as appropriate, to ascertain the cause of the incident and, when necessary, to establish specific measures to prevent a recurrence of that type of incident. These reports and inquiries are considered when revising pipeline safety and operational standards and regulatory requirements.

When a pipeline is damaged, the Board ensures that steps are taken to contain spills of hydrocarbons, to provide protection to the public and property, and to repair the damaged pipeline and return it to service as quickly as possible. The Board continues its surveillance of the site to ensure the effectiveness of the company's environmental rehabilitation program.

During 1988, the Board conducted various field inspections of pipelines incident locations to monitor the implementation of established emergency, safety and environmental protection procedures.

Table 6 shows the causes of pipelines incidents over the last five-year period. A total of 38 incidents occurred in 1988. One fatality was reported during the year.

Table 6
Causes of Pipeline Incidents 1983-1988

	1984	1985	1986	1987	1988
Defective Welds	4	5	0	3	3
Material Failures	10	4	5	4	7
Third Party Damage	5	6	3	8	6
Corrosion	6	5	10	8	4
Other	9	11	10	15	18
Total	34	31	28	38	38

Approvals

During 1988, the Board held public hearings to consider applications filed by TransCanada and Trans Mountain to expand their pipeline systems. Details are found under *Hearings and Inquiries*.

Westcoast received approval to construct the Umbach pipeline to connect natural gas reserves located in the Umbach area of northern British Columbia. This 20-kilometre gathering line is expected to cost \$3.5 million. The Board also authorized Westcoast to build the 11.3-kilometre North Jedney Extension, expected to cost about \$3.2 million. The extension will transport natural gas produced by Norcen Energy Resources Limited and

destined to be processed at Westcoast's Taylor Processing Plant. The Board also approved the purchase and construction of the Laprise off-load facilities, at a cost of about \$14.9 million, to allow the diversion of 2.3 million cubic metres per day of raw gas from the Taylor complex to the Fort Nelson mainline, and the construction of the 8.4-kilometre, \$1.4 million Redwillow Pipeline which will permit sour gas in the Thunder area to be gathered and delivered to the Pine River Processing Plant.

Shell Canada received approval to build a pipeline crossing under the St. Clair River near Corunna, Ontario. The pipeline will permit Shell to export natural gas liquids to Salmon Resources Ltd. via a new pipeline to be built by Salmon which will extend to the Consumers Power Company gas reforming plant in Marysville, Michigan. The Canadian portion of the pipeline, which will be approximately one kilometre long, will cost about \$1.2 million.

In a decision issued in October 1988, the Board authorized St. Clair Pipelines to build a 700-metre pipeline under the St. Clair River near Sarnia, Ontario to link the storage and transmission facilities of two pipeline companies, Union Gas Limited in Ontario and Michigan Consolidated Gas Company in Michigan. This link will increase accessibility to competitively priced American gas supplies and provide access to Michigan Consolidated's underground storage facilities.

Newex received Board approval to construct two short pipelines across the Saskatchewan/Alberta border to carry natural gas from Newex's gas wells in Saskatchewan to the Many Islands pipeline in Alberta.

The sale of Consolidated Pipe Lines' 210-kilometre pipeline extending from the Saskatchewan/Montana border to the TransCanada pipeline near Herbert, Saskatchewan and the assignment of the Consolidated certificate and licence to Many Islands was approved by the Board.

In June 1988, the Board approved construction of Novacorp's 700-metre pipeline under the Detroit River near Windsor, Ontario. The pipeline would provide natural gas service to the manufacturing plant of National Steel Corporation in Detroit, Michigan, which is currently served by the local distributor, Michigan Consolidated Gas Company. The pipeline is estimated to cost about \$1 million and would extend from the Ojibway meter station of Union Gas to a point on the international boundary. At year-end, the Board directed Union to construct connecting facilities at Ojibway.

In addition, the Board approved various other applications dealing with receipt or delivery facilities, pipeline replacements and modifications to existing pipeline facilities.

Environmental Matters

The Board is aware that the Canadian public has become increasingly concerned with the environmental implications of energy projects. Companies planning to construct and operate pipelines or power lines must act responsibly to minimize negative impacts and avoid extensive or irreversible damage to the land to be crossed. To ensure such responsible action, the Board audits all phases of project planning, construction and operation.

Of importance to that audit function is the environmental impact statement submitted by the company as part of a project application. The statement describes the proposed pipeline/power line corridor as it presently exists, the anticipated impact of the project on that corridor, and the procedures and measures to be implemented by the company to mitigate those impacts. The company's environmental impact statement is examined for completeness and accuracy in evaluating and assessing the impact of the proposed construction on the environment, and the measures to be implemented to mitigate those impacts.

In addition, the Board ensures that, where negative effects on the environment cannot be avoided or mitigated, companies restore and rehabilitate the affected areas. Where there are impacts on the environment, the Board requires the development of an environmental issues list as a tracking system for those impacts. The list complements the environmental impact assessment process and provides a focus for environmental protection activity during all phases of project development and operation. During 1984/85, the Board, with input from the pipeline industry, developed the concept of having such a list prepared. Since that time, the environmental issues list has evolved to become a useful addition to the environmental protection process at the Board.

“Companies planning to construct and operate pipelines or power lines must act responsibly to minimize negative impacts and avoid extensive or irreversible damage to the land to be crossed.”

As part of the Board's environmental protection program, the Board inspects pipeline and power line construction sites to

ensure compliance with the companies' environmental protection procedures. In addition, companies constructing energy transmission facilities must submit post-construction monitoring reports documenting the recovery of the rights-of-way following construction and the deletion from or addition to the environmental issues lists.

The Board is responsible for ensuring that pipelines are operated and maintained in an environmentally acceptable manner. The Board's activities include periodic audits to monitor the condition of rights-of-way and inspections of pipeline incident sites to ensure that environmental protection and restoration measures are fully implemented. The Board conducts inspections of pipeline pump and compressor stations, which include noise surveys and inspections of hazardous materials handling and storage. The Board also monitors the operation of several gas plants operated by Westcoast, with particular emphasis on sulphur emissions and the discharge of effluents from waste treatment ponds.

In 1988, the Board carried out several environmental audits. Those included inspections of the 1988 pipeline construction carried out on TransCanada's system in southern Ontario and in Quebec near Montreal, and Manito's pipeline construction from Bodo, Alberta, to Cactus Lake, Saskatchewan. The Board found that the projects were being constructed in an environmentally acceptable manner, using proper mitigative and restorative techniques. The companies will monitor the rights-of-way next summer, submitting environmental monitoring reports in December 1989 and will be required to implement remedial action if that is deemed necessary.

Board inspectors also monitored the rights-of-way of recently completed projects. During the summer of 1988, that included Interprovincial's 1987 pipe replacements between Edmonton, Alberta, and Regina, Saskatchewan; Interprovincial's 1986 line 3 replacements in Saskatchewan and Manitoba; TransCanada's Ancaster looping operations in Ontario; and Westcoast's Sikanni pipeline in northeastern British Columbia. The annual overflight inspection of the IPL(NW) pipeline in the Northwest Territories and northern Alberta was conducted during the summer. The recovery of all rights-of-way inspected in 1988 continues satisfactorily with few environmental impacts resulting from the construction of the projects. Ongoing monitoring and surveillance programs will ensure that any future site-specific concerns will be addressed.

Under its periodic operational audit program, the Board carried out audits of Westcoast's facilities in southern British Columbia

and its by-pass in the Coquihalla Canyon and Interprovincial's Sarnia to Montreal pipeline. Westcoast's rights-of-way were being well-maintained; however, Interprovincial's right-of-way from Sarnia to Toronto had areas which indicated reduced crop growth. Due to the drought in southern Ontario in 1988, it was decided to conduct the audit again in 1989, under, hopefully, more normal weather conditions, before making a final evaluation.

Under the Board's program of periodic facilities inspections, the Board inspected Trans Mountain's Burnaby and Sumas tank farms, and the Westridge oil loading terminal. All of those facilities were well maintained. There is an occasional problem with nuisance odours from the Burnaby tank farm and the Westridge terminal during sour crude oil loadings. However, Trans Mountain is planning to construct three new storage tanks equipped with vapour treatment systems at the Burnaby tank farm for use in storing the more odourous crude oils. At Westridge, Trans Mountain completed the final design of a two-stage vapour treatment system. However, approval of the system must be obtained from the Canadian Coast Guard and the Vancouver Port Authority, and the shipping companies must agree to adapt their vessels to enable hook-up to the system.

With the new installations at Burnaby and Westridge, odour problems for residents living in the vicinity of those facilities should be greatly reduced or eliminated in the near future.

Five spill sites on Interprovincial's pipeline system in Alberta and one site in Manitoba were assessed for rehabilitation and restoration. All sites exhibited good restorative success.

In addition, the Board conducted a post-construction audit of TransCanada's pipeline right-of-way in Ontario at the locations where Bell Canada had used the right-of-way to install its fibre optic cable system. Restoration of the disturbed portion of the pipeline right-of-way varied from fair to good. TransCanada will be requesting Bell Canada to implement further rehabilitation measures on those areas where restoration has not been satisfactory.

"The Board requires the development of an environmental issues list as a tracking system for (environmental) impacts. The list complements the environmental impact assessment process..."

The Board continued to collect baseline data on noise emissions at pump and compressor stations, specifically at facilities in the rapidly urbanizing areas of southern Ontario. Trans Northern's pump stations at Oakville and Nanticoke and Interprovincial's stations at South Westover, North Westover, Bryanston, Keyser and Sarnia were surveyed.

In 1988, the Board initiated a program to monitor the use and storage of polychlorinated biphenyls (PCBs) and other hazardous substances at pipeline facilities under its jurisdiction. PCBs are found in oil drained from electrical equipment that has been removed from service, not in the product being transported by the pipeline. The purpose of the monitoring program is to ensure that companies under the Board's jurisdiction take all necessary precautions to protect human health and safety and the environment when using, handling and storing hazardous substances. The program requires companies to provide the Board with an inventory of PCBs in use and in storage at their facilities. In addition, companies were requested to ensure that all PCB storage sites comply with the relevant legislation, and that contingency plans are in place to deal with any incident involving PCBs. Companies were also requested to inform the Board of their plans for the disposal of PCBs. Preliminary information indicates that a total of 392 litres of PCB-contaminated oil are being held by pipeline companies, under satisfactory storage conditions, awaiting disposal.

In 1989, the Board will expand its environmental audit program to include any inspections necessary to ensure that PCBs at NEB-regulated facilities are being used and stored safely. The Board will also ensure, in cooperation with the companies, that other hazardous substances which may be found at their facilities are managed in a way which protects human health and safety and the environment.

Third Party Crossing Matters

All construction affecting pipelines regulated by the Board required its approval until 17 October, the date on which the new Pipeline Crossing Regulations were approved. During the year 806 applications relating to pipeline crossings or right-of-way infringements were approved by the Board.

As a result of the new regulations, regulated pipeline companies may now grant permission to third parties proposing to carry out construction activities affecting pipelines. Proposed activities must meet the conditions set out in the regulations and construction standards ensuring the safety of the public and pipelines. The Board will become involved in crossing approvals

only where a dispute arises between the third party and the pipeline company.

In 1988, the Board conducted a number of random inspections of utility construction from Quebec to British Columbia. These inspections are designed to encourage safe construction practices near pipelines. Board inspectors also monitored the installation of fibre optic cables by Bell Canada adjacent to TransCanada's pipeline in Ontario and by B.C. Telephone Company near the Trans Mountain and Westcoast pipelines in British Columbia.

Since the approval of the regulations, the Board has investigated four violations of regulations by third parties. The objective of these investigations is to prevent a recurrence of such violations.

The Board is assisting the individuals involved to appreciate the need to follow safe construction practices and is advising them on appropriate changes to their procedures.

"806 applications relating to pipeline crossings or right-of-way infringements were approved by the Board."

Detailed Route Procedures

The Board did not receive any applications in 1988 where the detailed route procedures concerning the crossing of private land by pipelines needed to be implemented; however, the Board exempted several projects from detailed route procedures where new lands were required. In each case, the applicant demonstrated that options or easements had been obtained on all necessary lands.

Native Land Claims

The Board continued its monitoring of the federal government's negotiations on the settlement of comprehensive native land claims north of 60°, which involve areas of proven and potential oil and gas reserves. Included are the Western Arctic Claim (Mackenzie Delta), the Council of Yukon Indians Claim (Yukon Territory), the Dene-Métis Claim (Mackenzie Valley), and the Tungavik Federation of Nunavut Claim (Eastern Northwest Territories and High Arctic).

Those claims are presently at various stages of completion. Their status is as follows:

1. The Western Arctic Claim - the Inuvialuit Final Agreement, proclaimed 25 July 1984;

2. The Dene/Métis Claim, agreement-in-principle signed on 5 September 1988;
3. The Council of Yukon Indians Claim, agreement on all outstanding issues concerning an agreement-in-principle reached on 8 November 1988. It is anticipated that an agreement in principle will be signed by the spring of 1989; and
4. Tungavik Federation of Nunavut, 23 sub-agreements toward an agreement-in-principle have been reached to date.

The Board was an observer at the negotiations and was an information source on those issues that may impinge on certain areas of the Board's jurisdiction.

Memoranda of Guidance

During 1988, two memoranda of guidance dealing with land matters were forwarded to all companies under the Board's jurisdiction. One dealt with the granting of exemptions from the filing of plans, profiles and books of reference and the possibility of detailed route hearings. The other addressed the requirements for service of notices for acquisition of lands.

In the first, the Board concluded that, where a company is proceeding solely under the auspices of section 58 (formerly section 49) of the *Act*, it is neither necessary nor appropriate for the company to seek exemptions from all stated sections. This originates from the Board's finding that certain sections of the *Act* are not applicable unless a certificate is in force.

The second memorandum explains the requirement that a pipeline company must serve a notice of proposed acquisition of lands upon all identifiable parties that have an interest (registered or otherwise) in any particular lands that the company proposes to acquire for its pipeline.

Financial Regulatory Matters

Under Part IV of the *Act*, the Board is responsible for ensuring that the transportation tolls charged by the pipelines under its jurisdiction are just and reasonable and that there is no unjust discrimination.

In 1988 there were 46 pipeline companies under the Board's jurisdiction, two of which own two pipelines each, for a total of 48. Of these, three pipelines are inactive. The remaining 45

operating gas and oil pipelines are classified as follows: Group 1 contains the ten major pipelines and Group 2 contains the remaining, smaller pipeline companies.

This grouping of the pipeline companies, introduced by the Board in 1986, was aimed at tailoring the need for financial regulation in proportion to the degree of public interest. While the Board may undertake on its own initiative a review of the tolls of any company under its jurisdiction, the tolls of the Group 2 companies are normally reviewed only on receipt of a complaint. Otherwise, the monitoring of the Group 2 companies consists primarily of reviewing their annual financial performance.

For Group 1 companies, the monitoring process consists of the review of quarterly surveillance reports filed by the companies and the periodic audit of their operations.

The regulation of the tolls and tariffs of three of the Group 1 companies, Alberta Natural Gas, IPL(NW) and Cochin, has been done on a complaint basis since 1987, to reduce the regulatory burden. The Board actively regulates the tolls and tariffs of the remaining seven, either through the public hearing process, or through toll adjustment procedures based on written proceedings.

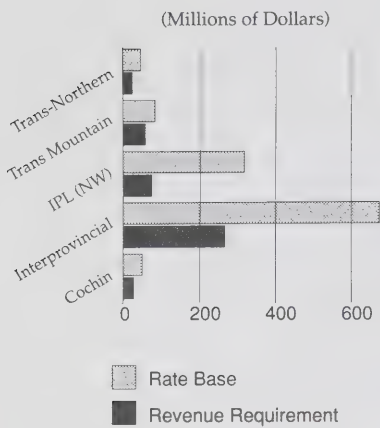
During 1988, non-hearing toll adjustment proceedings were completed for Trans-Northern, and initiated for Trans Mountain and Interprovincial.

In late 1987, the Board decided that Trans-Northern's level of earnings was too high and, effective 1 January 1988, placed the company's tolls on an interim basis pending a review. As a result of that review, the Board lowered the company's tolls by an average of nine percent.

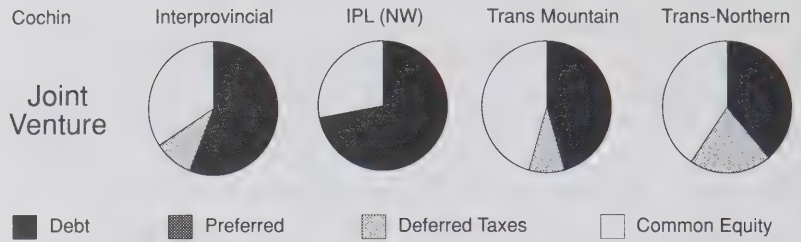
In late 1988, Interprovincial applied for an adjustment of its tolls for 1989, based on anticipated increases in throughput and in operation and maintenance expenses. The Board expects to approve new tolls early in 1989.

The need for new tolls for Trans Mountain arose in part because of the Board's approval in July 1988 of a \$56 million expansion of the company's system. At the Board's suggestion, Trans Mountain held meetings with industry representatives prior to filing its application in an attempt to negotiate a settlement on some of the issues. The Board expects to have new tolls in place early in 1989.

Figure 23
Group 1 Oil Pipelines
Rate Base and Revenue Requirement



Capitilization of Rate Base



Components of Revenue Requirement

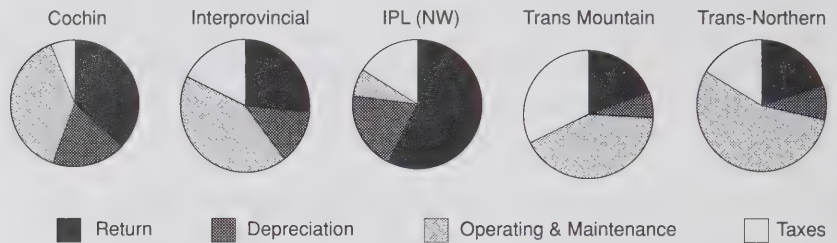
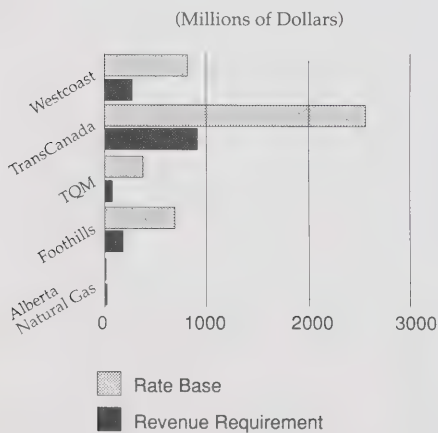
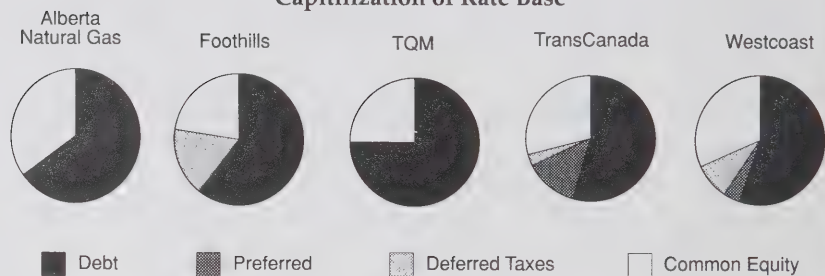


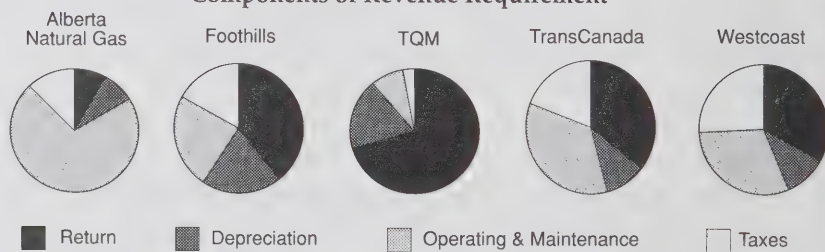
Figure 24
Group 1 Gas Pipelines
Rate Base and Revenue Requirement



Capitilization of Rate Base



Components of Revenue Requirement



Reference: Financial Regulation Appendix 1

Because the Board established tolls for Westcoast applicable to both the 1987 and 1988 test years in its 1987 decision, which was a regulatory first for the Board, no toll application was filed in 1988. Nevertheless 1988 was an eventful year for the company. In June, Westcoast's largest customer, Northwest Pipeline of Washington, declared itself an open access carrier under a provision of the regulations of U.S. Federal Energy Regulatory Commission. This action gave Northwest's customers the option to convert from being long-term buyers of gas from Northwest to being shippers of their own gas. Because many of its customers opted to switch, Northwest declared force majeure in the fall of 1988, and in effect suspended its obligations vis-à-vis Westcoast. As a result of this development, Northwest has filed an application with the Board for a number of regulatory actions which the Board is currently considering.

Inland Natural Gas requested the Board in November 1987 to reconsider its Order MO-3-87 which directed Westcoast to provide transportation service to Northwood Pulp and Timber Limited. Having considered the submissions of interested parties, the Board denied the application in January 1988.

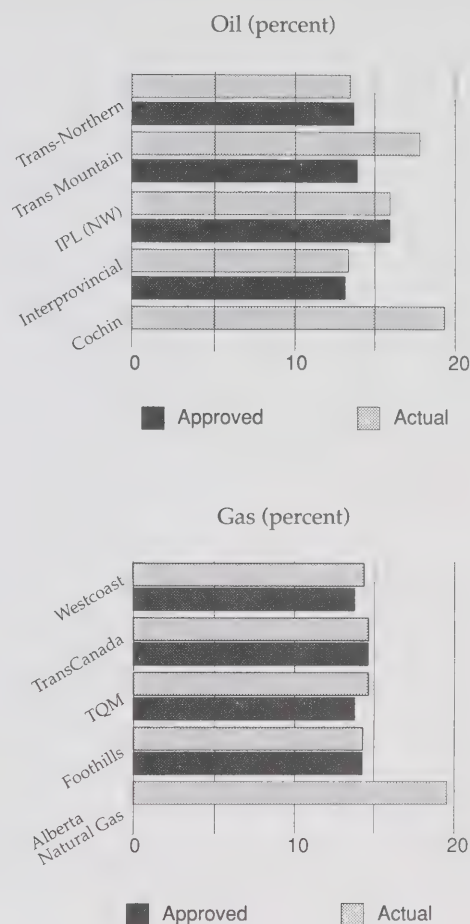
For a number of years, Foothills has included a special charge in its tolls. This charge comprises the return on, and amortization of, preliminary expenditures related to the Canadian mainline portion of the Alaska Natural Gas Transportation System which is as yet unbuilt. The authority to levy the charge expired on 31 October 1988. After soliciting comments from interested parties, the Board decided to allow Foothills to continue to include in its tariff a provision for the special charge for a further four years.

During 1988 the Board held public hearings for the consideration of the tolls and tariffs of TransCanada and TQM. Details are found under *Hearings and Inquiries*.

The 1988 financial data for these companies are shown in Figures 23 and 24. The 1988 approved and actual rates of return on equity for the Group 1 pipeline companies are illustrated in Figure 25.

The Board has responsibility under the *Energy Administration Act* for the collection of oil export charges. Although the charges on crude oil and bulk petroleum product exports were reduced to zero in 1985, some activity remained in the areas of collection and write-off of outstanding assessments.

Figure 25
Group 1 Companies
Rate of Return on Common Equity



Reference: Financial Regulation Appendix 1

Legal Actions

Cyanamid Canada Pipeline Inc.

On 6 April 1987, Cyanamid applied for a review of the Board's December 1986 decision that the Board had jurisdiction over a short pipeline to be constructed by Cyanamid from its plant at Welland, Ontario, to the TransCanada pipeline at Black Horse Station. In view of a judgment in March 1987 of the Divisional Court of the Supreme Court of Ontario, which had confirmed the exclusive jurisdiction of the Ontario Energy Board over typical by-pass pipelines in Ontario such as Cyanamid's proposed facilities, Cyanamid also requested that the question of jurisdiction be referred to the Federal Court of Appeal to confirm federal jurisdiction over its proposed facilities. In April 1987, the Board decided to proceed with the review and to refer the issue of jurisdiction to the Federal Court of Appeal.

On 27 November 1987, the Federal Court of Appeal ruled that the Board did not have jurisdiction over the proposed Cyanamid facilities. Cyanamid then applied to the Supreme Court of Canada for leave to appeal the Federal Court of Appeal's decision. The application was heard by the Court on 25 April 1988. In a decision rendered from the bench, the Court granted leave to appeal.

Following the Ontario Divisional Court judgment, the Lieutenant Governor of Ontario brought a reference on the matter to the Ontario Court of Appeal. The reference was heard in October 1987 and the Court of Appeal rendered its decision in February 1988 affirming that by-pass pipelines similar to that proposed by Cyanamid fell within provincial jurisdiction. Cyanamid appealed the decision of the Court of Appeal of Ontario to the Supreme Court of Canada. It is anticipated that Cyanamid's two appeals before the Supreme Court of Canada will be heard together in the spring or summer of 1989.

Northridge Petroleum Marketing, Inc. and ENRON Canada Ltd.

In late June 1987, Northridge and ENRON applied to the Federal Court of Appeal for leave to appeal the Board's decision of 26 May 1987 concerning the complaints of Northridge and ENRON against TransCanada. Northridge and ENRON had complained about the tolls charged by TransCanada for gas sold under TransCanada's competitive marketing program agreements.

On 18 August 1987, the Federal Court of Appeal granted leave to appeal. Northridge and ENRON informed the Board in November 1988 that they intend to withdraw their appeals.

Manitoba Oil and Gas Corporation (MOGC)

On 18 November 1987, MOGC applied to the Federal Court of Appeal for leave to appeal the Board's decision of September 1987 which denied MOGC's application. MOGC had applied for the Board to order TransCanada to transport MOGC's natural gas. The Court heard the application on 20 April 1988 and rendered its decision from the bench, dismissing the application.

Corporation of the District of Burnaby

On 16 September 1988, the Corporation applied to the Federal Court of Appeal for leave to appeal the Board's July 1988 decision authorizing Trans Mountain to expand its pipeline system in Alberta and British Columbia, including the installation of three new storage tanks at Burnaby.

On 17 October, the Court heard the application in Vancouver and dismissed it.

Union Gas Limited

On 20 December 1988, Union Gas filed with the Federal Court of Appeal an application for leave to appeal the Board's November 1988 decision in which the Board denied an application by Union to review that part of the Board's July 1988 Reasons for Decision (GH-2-87) relating to the Kirkwall Line and for an order to vary Certificate GC-73 issued to TransCanada following the hearing held pursuant to GH-2-87.

In its November 1988 Reasons for Decision, the Board indicated that it was of the view that the Union application was tantamount to a request to suspend the certificate issued to TransCanada, a request that the Board was not empowered to entertain except under the circumstances set out in section 56 (formerly section 47) of the *Act*, namely, if the holder of the certificate consents to such a suspension or has breached any term or condition attached to the certificate.

The applicant has argued that the Board erred in law in determining that it had no jurisdiction to hear the applicant's motion under either subsection 21(1) or subsection 21(2) (formerly subsections 17(1) and 17(2)) of the *National Energy Board Act*.

It is not known when the Application for Leave to Appeal will be dealt with by the Court.

Legislation and Regulations

... includes changes to the Act and Regulations under which the Board operates.

The following section outlines changes that were made during 1988 to the Act, Regulations, and Rules under which the Board operates. The Board's quarterly regulatory agendas provide additional detail on this subject.

Onshore Pipeline Regulations

The Onshore Pipeline Regulations came into effect on 1 September 1988 and combined and replaced the Oil Pipeline Regulations and Gas Pipeline Regulations. These regulations provide for the safe design, construction and operation of onshore oil and gas pipelines.

The regulations, developed in consultation with industry, refer to accepted industry standards (Canadian Standards Association) for most of the technical requirements for pipelines.

The Onshore Pipeline Regulations will be amended to reflect the outcome of the Board's consideration of comments from industry and other interested parties on the recommendations, other than recommendation 5.9, which were included in the Board's report dated June 1986 on an accident in February 1985 on Interprovincial's pipeline system. (Please refer to *Hearings and Inquiries*.)

Offshore Pipeline Regulations

On 24 November 1988, the Board issued for comment the second draft of its new Offshore Pipeline Regulations. These regulations provide for the safe design, construction, and operation of offshore pipelines. The CSA preliminary standard, CSA Z187, Offshore Pipeline Standard, forms the technical basis for the Board's new Offshore Pipeline Regulations.

The new draft took into account the comments of interested parties on a previous draft. Subsequent to the review of the new draft, the regulations will be submitted for examination by the Department of Justice.

Rules of Practice and Procedure

The Board issued a revised draft of its Rules of Practice and Procedure and schedules on 7 May 1987. Although the revised rules must still be examined by the Department of Justice and published in the Canada Gazette, the Board has asked all parties to use them.

Regulations Respecting Crossings of Pipelines

The Board on 14 November 1988 issued new regulations governing the crossing of federally regulated pipelines by third parties. The regulations, which came into effect on 17 October 1988, are in two parts.

Part I of the regulations sets out the circumstances and conditions under which leave of the Board is not required before excavating on a pipeline right-of-way or constructing, for example, a highway, ditch or utility across a pipeline or its right-of-way. To meet the conditions for not requiring leave, the excavator or contractor must undertake certain responsibilities, such as following specified construction procedures and complying with the pipeline company's instructions in the field. Part I was given final approval by the Board on 17 October 1988. It did not require approval of the Governor in Council.

Part II of the regulations defines the responsibilities which are imposed on the pipeline company to ensure safety during construction of the crossing. Part II was approved by Governor in Council on 17 October 1988.

As a result of the passage of these regulations, General Order No. 2 has been amended, so that it no longer applies to any applications approved after 17 October 1988; however, its conditions apply to those approvals granted prior to the new regulations' coming into force. As well, the Pipeline Overhead Crossing Order was rescinded.

Crossing of Utilities by Pipelines

On 28 July 1988, the Board issued an Order Respecting the Crossing of Utilities by Pipelines, which sets aside the requirement for pipeline companies to obtain leave of the Board prior to constructing across a utility, road, or the like, if consent from the affected utility is first obtained.

... the crossing regulations provide increased flexibility to the affected pipeline companies and contractors.

The related responsibilities of pipeline companies with respect to crossings of utilities are prescribed in the Board's Onshore Pipeline Regulations. The order also amends General Order No. 1, which

previously governed pipeline crossings, so that the conditions specified in General Order No. 1 continue to apply to all applications previously granted by the Board.

International Power Line Crossing Regulations

Following receipt of comments from interested parties on the draft *International Power Line Crossing Regulations*, the Board approved a new draft which was sent to the Department of Justice for examination in September 1987.

On advice from the Department of Justice, the regulations were divided into two sets of regulations, as follows:

1. International Power Line Crossings, Construction and Abandonment Regulations

These regulations deal with crossings by international power lines as well as the company's responsibilities to maintain crossing records, abandon crossings, and report incidents. The regulations are subject to examination by the Department of Justice and approval by the Governor in Council.

2. International Power Line Crossings Regulations

These regulations deal with crossings of international power lines and set out the terms and conditions under which leave of the Board to cross such power lines need not be obtained. The regulations have been approved in principle by the

Board and are subject to examination by the Department of Justice prior to implementation.

The scope of these regulations is being re-examined in view of possible amendments to the NEB Act as a result of the new electricity export policy recently announced.

National Energy Board Part VI Regulations

The Part VI Regulations are being amended to reflect recent changes in export regulation, e.g., new natural gas surplus determination procedures and changes to electric power export regulation. As well, changes suggested by the Standing Joint Committee on Regulatory Scrutiny will be made, including the removal of certain provisions respecting export and import reporting requirements, which are now to be included in the Export and Import Reporting Regulations (see below).

The proposed amendments, when made, will require examination by the Department of Justice and approval by Governor in Council.

As part of the package of amendments implementing the Canada-United States Free Trade Agreement, subparagraph 6(2)(z)(iii) of the regulations has been revoked. This was the requirement that an applicant for a licence to export electricity provide evidence to demonstrate that the export price would not result in prices in the country to which the power is exported being materially less than the least cost alternative for power and energy at the same location within that country (the third price criterion).

Export and Import Reporting Regulations

These proposed regulations would require persons exporting oil, natural gas, or power, or importing natural gas under licence or order to provide certain information to the Board.

The information is similar to that currently required by the Part VI Regulations. However, on the suggestion of the Standing Joint Committee on Regulatory Scrutiny, the Board decided to remove the reporting requirements from the Part VI Regulations, and make new regulations under subsection 129(1) (formerly 88(1)) of the *Act*.

The regulations, which will require Governor in Council approval, will be processed together with the above-noted changes to the Part VI Regulations.

Cost Recovery Regulations

Pursuant to the government's cost recovery initiative introduced in the May 1985 Budget, the Board completed a feasibility study on recovering the costs of regulation from companies under its jurisdiction. The study received Treasury Board's approval in

principle in November. Implementation of the initiative would require an amendment to the *National Energy Board Act*, consultation with industry, and the subsequent making of regulations. Prior to coming into force, the regulations would require examination by the Department of Justice and approval by Governor in Council.

"Implementation of the cost-recovery initiative would require an amendment to the Act, consultation with industry, and the subsequent making of regulations."

Amendments to the National Energy Board Act

Revised Statutes of Canada, 1985

- New Consolidation of the National Energy Board Act

On 12 December 1988, the Revised Statutes of Canada, 1985 came into force. This statute consolidation contains all Federal Statutes and amendments thereto up to 31 December 1984 including the *National Energy Board Act*. There were no substantive changes to the content of the *Act*, but extensive changes were made in the numbering of the sections.

Canada-U.S. Free Trade Agreement Implementation Act

In the *Canada-U.S. Free Trade Agreement Implementation Act*, amendments were made to Part VI of the *National Energy Board Act*. These amendments require the Board to give effect to the Canada-U.S. Free Trade Agreement when exercising its power and performing its duties and provide for the Governor in Council to make orders of general application respecting the interpretation of the Agreement and the manner in which the Board shall perform its duties to give effect to the Agreement.

The amendments set out requirements which must be met before exports can be restricted for the reasons referred to in Article 904 of the Free Trade Agreement. The amendments also allow the Governor in Council to make regulations exempting oil or gas that is exported to the United States from the application of any export prices which might be prescribed by regulation.

Organization

Person-Year Allocation: 358

Budget: \$24.4 million

Members of the National Energy Board

The membership of the Board as of 31 December 1988 was:

Roland Priddle	Chairman
Jean-Guy Fredette	Vice-Chairman
Livia M. Thur	Associate Vice-Chairman
A. Digby Hunt	Associate Vice-Chairman
John R. Jenkins	Member
R. Byron Horner, Q.C.	Member
William G. Stewart	Member
A. Boyd Gilmour	Member
David B. Smith	Temporary Member
Kenneth W. Vollman	Temporary Member

David Smith was appointed a temporary Board Member on 22 September 1988 for a three-year period.

Kenneth Vollman was appointed a temporary Board Member on 30 September 1988 for a one-year period.

Board Members

The Board is pleased with the one-year extension of John R. Jenkins' term as a Member and the appointment of two new Temporary Members.

David B. Smith was appointed to a three-year term, effective 22 September 1988; he is located at the Board's office in Calgary. During his career, Mr. Smith has held senior positions with a number of Alberta-based companies and was the founding chairman of the Government of Alberta's Electric Energy Marketing Agency. He is a former senator and governor of the University of Alberta.

Kenneth W. Vollman was appointed to a one-year term, effective 30 September 1988. He worked for a major oil company in Calgary, then joined the National Energy Board in 1973 as a staff engineer. Mr. Vollman was named Director of the Energy Resources Branch in 1978, Director General of Energy Regulation in 1982 and Director General of Pipeline Regulation in 1985.

All three Members are professional engineers.

Standing Panels

The Board assigns much of its non-hearing regulatory work to three standing panels, composed of quorums of three to five Board Members.

The standing panels refer to the Board as a whole any matters involving Board policy, regulatory principles, or jurisdiction, or that warrant a public hearing. Except as noted below, panels do not issue or amend certificates or licences, or decide matters requiring a public hearing.

Members of the Board's standing panels as of year-end, and their responsibilities, are given below. The composition of standing panels is changed at appropriate intervals to provide members with an opportunity to become familiar with all aspects of the Board's work. The first-named member of each panel is the Panel Chairman. The Board's Chairman is an ex-officio member of all panels.

Energy Commodities Panel

R.B. Horner	Exercises the powers of the Board on matters relating to natural gas, propane, butanes, ethane, crude oil, petroleum products and electricity; regulates matters of traffic on oil and gas pipelines; advises the Minister on all commodity matters.
J.-G. Fredette	
L.M. Thur	
A.D. Hunt	
W.G. Stewart	

Pipeline Panel

A.B. Gilmour	Exercises the powers of the Board on matters relating to the construction, operation, and maintenance of pipelines, including safety and environmental considerations.
J.R. Jenkins	
R.B. Horner	
K.W. Vollman	
A.D. Hunt	

Financial Regulatory Panel

J.-G. Fredette	Exercises the powers of the Board with respect to tariffs and tolls charged by pipeline companies under the Board's jurisdiction.
W.G. Stewart	
A.B. Gilmour	
J.R. Jenkins	

Staff

For the fiscal year 1988-89 the Board's budget was \$24.4 million with a person-year allocation of 358.

The Board's offices and branches are described below; the inside back cover of this report lists the Board's senior staff.

The **Executive Director** is the Board's senior staff member and Chief Operating Officer. His responsibilities include the overall management of the Board, the acquisition and allocation of human and financial resources, the efficiency and effectiveness of Board activities and operations and the provision of advice on such matters as the Chairman may deem appropriate.

The *Finance and Administration Branch* coordinates and administers the financial and administrative policies under which the Board operates. It provides advice and services relating to accounts processing, financial planning and budgeting, and property, materiel, records and mail management. It also provides accounting services for the Northern Pipeline Agency.

The *Personnel Branch* provides advice and services in the areas of staffing, human resources planning, training, affirmative action programs for visible minorities, official languages, classification, staff relations, and pay and benefits.

The *Planning and Review Branch* is responsible for the Board's operational planning process, program review and internal audit.

The *Information Technology Branch* is responsible for corporate planning, computer systems services, word processing support, data processing support and telecommunications. This includes consultative service on computer operations, data management, program design and development, and an advisory service on the latest data processing techniques and applications. Branch responsibilities also include the integration of information and processing systems and services for the Board.

The *Director General, Energy Regulation* is responsible for the integration of all staff activities involving the regulation of energy exports and international power lines. This encompasses planning and coordinating all work affecting the regulation of international power lines, exports of oil, gas, and electricity under Part VI of the *National Energy Board Act*, and coordinating the analysis of all matters related to energy demand and supply.

The *Economics Branch* is responsible for evaluating the economic worth to Canada of applications before the Board to licence exports and to certificate pipeline and international power line projects. The Branch develops, in collaboration with others in the Board, general approaches to energy regulation and pipeline toll and tariff structures which involve considerations of economic efficacy. The Branch is responsible for preparing detailed projections of energy demand in Canada, macro-economic projections for the long-term performance of the Canadian economy, long-term outlooks for Canadian exports of natural gas and electricity to the American market and long-term projections of world oil prices, these activities largely in support of the Board's Supply and Demand Reports, market monitoring requirements and evaluations of export licence and facilities applications. The Branch also advises on the state of competitive conditions in energy markets, to the extent required for the Board's regulatory mandate.

The *Energy Supply Branch* is responsible for advising on matters relating to oil and gas exploration, drilling, production, and developing forecasts of oil and gas supply from conventional, oil sands, synthetic, and frontier sources. The Branch independently calculates the reserves and productive capacity of gas and oil. A part of this work is carried out in the Board's Calgary office.

The *Electric Power Branch* advises on matters relating to electricity export licensing, international power line certification, and regulatory surveillance. The Branch prepares supply and

demand forecasts for electricity that are used in dealing with electrical and other applications, reviews the American market for electricity, and provides advice on matters under federal jurisdiction that relate to the production, transportation, sale, and exchange of electricity.

The ***Gas and Oil Branch*** provides advice to the Board on oil and gas matters including evaluation of oil and gas markets in Canada and the United States and commercial transactions, and transmission, processing and distribution of oil and natural gas. It also synthesizes such information into assessments applicable to the Board's regulatory roles. The Branch is responsible for export regulation and monitoring and for matters related to traffic and discrimination in service for gas and oil pipelines. The Branch collects and disseminates data on exports including volumes and prices, and also prepares and supplies data on the consumption and transportation of crude oil, petroleum products, gas products and natural gas, incorporating estimates of short-term domestic and export demand and pipeline throughputs.

The ***Director General, Pipeline Regulation*** integrates all staff activities relating to the regulation of gas, oil, and petroleum products pipelines. This encompasses the design, construction, operation, safety, and environmental concerns specified under Part III of the *National Energy Board Act* and matters regarding traffic, tolls, and tariffs under Part IV of the *Act*.

The ***Environment Branch*** provides advice on the protection of the environment during the construction and operation of pipeline and power line facilities and on the protection of land-owner rights with respect to land acquisition. It advises on the environmental consequences of energy exports including the impact resulting from the generation of that power. In addition, Branch staff provide advice on the technical requirements related to third-party crossings on pipeline rights-of-way.

The ***Pipeline Engineering Branch*** advises on matters relating to pipeline certificates issued under the *National Energy Board Act* and for the regulation of the safety of pipeline facilities under the Board's jurisdiction. The Branch is the Board's principal source of advice on technical matters included in applications by pipeline companies for facilities construction. Board staff in this Branch also administer certain portions of the *Canada Labour Code* relating to pipeline worker safety.

The ***Financial Regulation Branch*** has the primary responsibility for tolls and tariffs, financial regulatory advice and costs of transportation under specific areas of the *National Energy Board Act* and the *Energy Administration Act*. It also audits the accounts of pipeline companies under the Board's jurisdiction and monitors the financial performance of pipelines.

The **Law Branch** provides legal advice to the Board on all matters relating to the Board's powers and responsibilities, acts as Counsel for the Board at public hearings, and represents the Board in proceedings before the Federal and Supreme Courts of Canada.

The **Office of the Secretary** receives all applications and submissions and coordinates their consideration by the Board. It advises on the scheduling of hearings, and makes all administrative arrangements for public hearings in Ottawa and across Canada. In addition, it provides media and public relations services, publications services and operates the Board's library. It administers the *Access to Information and Privacy Acts* and coordinates translation services with the in-house translation unit provided by Secretary of State.

Functions and Responsibilities

... oil, natural gas and electricity exports; pipeline and power line construction; pipeline tolls and tariffs; energy studies

Responsibilities Under the National Energy Board Act

The Board has two principal responsibilities under the *National Energy Board Act*:

- to regulate specific matters concerning oil, gas and electricity in the public interest, and
- to advise the government on the development and use of energy resources.

The Board has the authority to hold inquiries into any aspect of energy matters under its jurisdiction and to issue reports for the use and information of government, Parliament, and the general public.

The regulatory roles of the Board are described below.

Export Licences and Orders

The Board issues long-term licences for the export of oil, gas, and electricity. Such licences are normally granted following public hearings. In issuing export licences, the Board must satisfy itself that, among other things, the quantities of energy exported do not exceed the surplus remaining after making allowance for reasonably foreseeable Canadian requirements. The Board also issues orders for short-term exports of energy commodities subject to the restrictions imposed in the National Energy Board Part VI Regulations. In addition, the Board authorizes licences and orders for imports of natural gas.

Regulation of Pipeline Traffic, Tolls, Tariffs, and Accounting Practices

The Board regulates the traffic, tolls and tariffs of pipeline companies under federal jurisdiction to ensure that the tolls are just and reasonable and that there is no unjust discrimination in tariffs or service.

Certificates of Public Convenience and Necessity for Pipelines and Power Lines

The Board grants certificates to construct and operate interprovincial and international oil, gas, and petroleum products pipelines, as well as international and designated interprovincial electric power lines. Before a certificate is issued, the Board is required to hold a public hearing.

Detailed Routing - Pipelines and Power Lines

Persons whose lands may be affected by the route of a pipeline or power line approved by the Board can present their views to the Board at a local public hearing. Their evidence is considered in the determination of the final detailed route of the line.

Pipeline and Power Line Orders

The Board approves without a public hearing minor pipeline facilities or minor additions to, or modifications of, existing pipeline systems. These approvals are restricted to pipelines not more than 40 kilometres long and to installations such as tanks, pumps, compressors, and meter stations. The Board may also authorize, without a public hearing, the construction and operation of international power lines not exceeding 50 kilovolts.

Pipeline Safety

The Board's Onshore Pipeline Regulations provide for the safe design, construction, and operation of pipelines under the Board's jurisdiction. To ensure high standards of pipeline construction and operation, the Board carries out inspection programs and conducts investigations of pipeline system performance.

Improving the Regulatory Process

A twenty-month consultative process with industry culminated in the Board's publication in October 1988 of a report on ways to improve and streamline the regulatory process.

The report, Improving the Regulatory Process, reviews 20 suggestions that were received from parties who appear before the Board in the public hearing process. The suggestions range from procedural matters to issues such as the feasibility of negotiated settlements and generic rulemaking, the clarification of the role of Board staff at hearings, the application of the rules of natural justice and the use of technical conferences. The report sets out the Board's current position on each of the 20 suggestions.

The Board's review and amendments to its regulatory process are aimed at providing a more efficient level of service to the benefit of all parties appearing before it.

Pipeline Utility Crossings

Until the fall, the Board, to enhance public safety, granted prior approval to utilities crossing a pipeline, thereby ensuring design compatibility and reducing the possibility of damage to the pipeline. It also established the conditions under which a pipeline might be constructed across an existing utility, thereby ensuring the integrity of other utility services. Construction of a pipeline crossing navigable water or a railway requires permission of the Minister of Transport or the National Transportation Agency. (Please refer to *Legislation and Regulations*)

Environmental Protection

The Board considers the environmental implications of any proposal to build and operate an oil or gas pipeline or international power line. Companies preparing an application to the Board are encouraged to anticipate and discuss with all levels of government, public interest groups, and affected landowners the environmental issues and concerns that the proposed project could create. Such early planning with respect to environmental matters produces a more complete application addressing the appropriate alternatives and taking into account the public's concerns.

To ensure the highest level of environmental protection, the Board welcomes interventions at hearings from local environmental and public interest groups, as well as concerned individuals. To encourage public participation, the Board often convenes the hearing in the area where construction impacts would occur.

Foreign Delegations

During the year, the Board continued its practice of sharing information and experiences with the public, industry, other government departments, both provincial and federal, and with the governments of other countries. The Board received delegations from Brazil, China, Czechoslovakia, New Zealand, Norway and the United States. In general, the visitors were interested in the Board's approach and practices concerning financial, engineering and environmental regulation and found them to be useful references for application in their own countries. Board staff also briefed officials of the International Energy Agency in connection with its triennial review of energy policy in developed countries and participated in discussions with the United States on natural gas and energy trade under the auspices of the Canada-United States Consultative Mechanism.

After the issuance of a certificate or order, the Board audits the company's construction activities, and later, during the operation of the system, its routine maintenance and monitoring procedures. In that way, the Board can be satisfied that the company is continuing to protect the environment, and to ensure public health and safety.

Socio-Economic Impact

As part of its facilities approval process the Board considers local and regional social and economic concerns. The Board ensures that applicants take all reasonable steps to minimize project-induced negative impacts and to enhance project benefits accruing to local and regionally affected social groups. This can include a pre-project socio-economic impact assessment, a review of proposed socio-economic action plans, post-certificate monitoring of the success or failure of the action plans, and an assessment of actual project impacts.

Responsibilities Under the Energy Administration Act

The Board's responsibilities under the *Energy Administration Act* relate to the collection of oil export charges. Although the charges on crude oil and bulk petroleum product exports were reduced to zero in 1985, some activity remained in the areas of collection and write-off of outstanding assessments.

Responsibilities Under the Northern Pipeline Act

The Board's statutory responsibilities regarding the Canadian portion of the Alaska Natural Gas Transportation System relate mainly to the regulation of tolls and tariffs, the approval of pipe specifications, the granting of leave to open orders, and the regulation of the operation of the line. On 30 December, K.W. Vollman was appointed the Designated Officer for the Northern Pipeline Agency. His appointment is in response to an application by Foothills Pipe Lines (Yukon) Ltd. for authorization to construct and operate a new compressor station near Val Marie, Saskatchewan.

Labour Canada Agreement

A memorandum of understanding has been entered into by the Board and Labour Canada, whereby certain Board inspectors have been appointed safety officers by the Minister of Labour and have assumed operational responsibilities for matters of occupational safety and health as covered in Part IV of the

Labour Code. The agreement, which became effective on 23 February 1987, includes all pipelines under the Board's jurisdiction but excludes certain areas such as head offices and regional offices of the pipeline companies; these will continue to be the responsibility of Labour Canada inspectors.

Public Access and Participation

The Board is a court of record. With specific exceptions relating to the confidentiality of certain competitive pricing information, the Board's deliberations are conducted on the basis of information that is publicly filed and publicly available in the Board's library in Ottawa and at its office in Calgary. For major applications and inquiries, the Board holds public hearings at which applicants and interested persons have full rights of participation in the official language of their choice. To give parties an opportunity to discuss their concerns or questions, the Board provides advance notice of its hearings by requiring that notices be published in newspapers and allows time for parties to respond to requests for information.

In addition, the Board issues quarterly regulatory agendas on matters coming before the Board as well as information bulletins and press releases on a variety of matters pertaining to Board activities.

Implementation of Board Decisions

When the Board is prepared to grant a certificate for a pipeline or a power line or to issue a licence for the export of natural gas or electricity, the import of natural gas, or the long-term export of oil, it so reports to the Governor in Council through the Minister of Energy, Mines and Resources. If a certificate is approved by the Governor in Council, the certificate is then issued by the Board. In the case of long-term export or import applications, licences issued by the Board go into effect on approval by the Governor in Council. A decision of the Board to refuse an application is not subject to referral to the Governor in Council. The Board's Reasons for Decision on applications are issued as public documents. The Board's decisions on tolls and tariffs are made without reference to the Governor in Council, as are the majority of the Board's day-to-day decisions.

Reviews and Appeals of Board Decisions

The Board may review, rescind, or change any of its orders or decisions, or rehear any application before deciding on it. It may also change a previously issued certificate or licence, but no such change is effective until approved by the Governor in Council.

Parties may apply to the Board requesting that a decision be reviewed. A decision may be appealed to the Federal Court of Appeal, with leave of that Court, provided the appeal is based on a point of law or jurisdiction.

Awarding of Costs

Except in detailed route hearings, the Board does not have the power to award costs to participants in its proceedings.

In the case of detailed route hearings, the Board may establish the appropriate level of compensation to be paid to a landowner for costs associated with participation in the hearing.

Reasons for Decisions Issued in 1988

1. FOOTHILLS PIPE LINES (YUKON) LTD. - Application dated 15 June 1987 for approval of the institution of interruptible service (Hearing Order RH-5-87) - December 1987
2. HYDRO-QUÉBEC - Application for exports to New England Utilities - (Hearing Order EH-3-87) - February 1988
3. HYDRO-QUÉBEC - Application for exports to Vermont Joint Owners - (Hearing Order EH-4-87) - February 1988
4. MAINE AND NEW BRUNSWICK ELECTRICAL POWER COMPANY, LIMITED - Application for exports to Maine Public Service Company - (Hearing Order EH-1-88) - May 1988
5. PAN ALBERTA GAS LTD. - Application pursuant to section 17 of the NEB Act for a change, alteration or variation to natural gas export licence GL-96 - (Hearing Order GH-1-88) - June 1988
6. TRANSCANADA PIPELINES LIMITED - Applications for facilities and approval of toll methodology and related tariff matters - (Hearing Order GH-2-87) - July 1988
7. TRANS MOUNTAIN PIPE LINE COMPANY LTD. - Application under Parts III and IV of the NEB Act - (Hearing Order OH-1-87, as amended) - July 1988
8. CANADIAN HUNTER EXPLORATION LTD. - Application for a licence to export natural gas - (Hearing Order GH-2-88) - August 1988
9. ST. CLAIR PIPELINES LTD. AND TRANSCANADA PIPELINES LIMITED - Pipeline Facilities - (Hearing Order GH-3-88) - October 1988

Other Major Documents Issued in 1988

1. Exports of Petroleum Products 1987 - March 1988
2. 1987 Annual Report - March 1988
3. Exports of Crude Oil 1987 - April 1988
4. Annual Report Pursuant to Access to Information Act and Privacy Act - June 1988
5. Canadian Electric Utilities Analysis of Generation and Trends - June 1988
6. Improving the Regulatory Process - Current Position on Submitters' Suggestions - September 1988
7. Canadian Energy Supply and Demand 1987-2005 - September 1988
8. Natural Gas Market Assessment - October 1988

Companies Under National

The following is a list of pipeline companies¹ which own and/or operate interprovincial or international pipelines under the Board's jurisdiction, companies that have been granted licences to export natural gas, and electric utilities that have been granted electricity export licences by the Board. References to the following companies in this report use the abbreviations indicated in brackets.

PIPELINES

Group 1 Gas

Alberta Natural Gas Company Ltd.
(Alberta Natural Gas)
Foothills Pipe Lines (Yukon) Ltd. (Foothills)
Gazoduc TQM² (TQM)
TransCanada PipeLines Limited (TransCanada)
Westcoast Energy Inc. (Westcoast)

Group 2 Gas

Amoco Canada Petroleum Company Ltd. (Amoco)
(inactive)
A.P.R. Pipeline Company Ltd. (A.P.R. Pipeline)
Canadian Hunter Exploration Ltd.
(Canadian Hunter)
Canadian-Montana Pipe Line Company
(Canadian-Montana)
Champion Pipe Line Corporation Limited
(Champion)
Consumers' Gas (Canada) Limited (Consumers' Gas)
Dome Petroleum Limited (Dome) (inactive)
ICG Transmission Holdings Ltd. (ICG)
Many Islands Pipe Lines (Canada) Limited
(Many Islands)
Mid-Continent Pipelines Limited (Mid-Continent)
Minell Pipeline Ltd. (Minell)
Murphy Oil Company Ltd. (Murphy Oil) (inactive)
Newex Resources Ltd. (Newex)
Niagara Gas Transmission Limited (Niagara Gas)
Novacorp International Pipelines Ltd. (Novacorp)
Peace River Transmission Company Limited (Peace River)
Saskatchewan Power Corporation (Saskatchewan Power)
Shell Canada Products Limited (Shell Canada)
St. Clair Pipelines Ltd. (St. Clair Pipelines)
Union Gas Limited (Union Gas)

Group 1 Oil and Products

Cochin Pipe Lines Ltd. (Cochin)
Interhome Energy Inc. (Interprovincial)³
Interprovincial Pipe Line (NW) Ltd., (IPL(NW))
Trans Mountain Pipe Line Company Ltd. (Trans Mountain)
Trans-Northern Pipelines Inc. (Trans-Northern)

Group 2 Oil and Products

Aurora Pipe Line Company (Aurora)
Dome Kerrobert Pipeline Ltd. (Dome Kerrobert)
Dome NGL Pipeline Ltd. (Dome NGL)
Dome NGL Pipeline Ltd. and Amoco
Canada Petroleum Company Ltd (Dome NGL and Amoco)
Esso Resources Canada Limited (Esso Resources)
Manito Pipelines Ltd. (Manito)
Montreal Pipe Line Limited (Montreal)
Mont Resources Limited (Mont Resources)
Murphy Oil Company Ltd. (Murphy Oil)
Northwest Transmission Company Limited
(Northwest Transmission)
Petroleum Transmission Company
(Petroleum Transmission)
Polysar Hydrocarbons Limited (Polysar)
Sun Pipe Line Company (Sun)
Wascana Pipe Line Ltd. (Wascana)
Westspur Pipe Line Company (1985) Inc. (Westspur)
Windsor Storage Facility Joint Venture (Windsor Storage)
Yukon Pipelines Limited (Yukon)

1 The pipeline companies have been divided into two groups. Group 1 consists of the ten major pipeline companies which are audited by the Board on a regular basis and whose operating results are continuously monitored by the Board. The 36 companies under the Board's jurisdiction that are not included in Group 1 have been designated as Group 2 companies.

2 In December, Trans Québec & Maritimes Pipeline Inc. informed the Board that it had changed its name to *Gazoduc TQM*.

3 On 5 May, Interprovincial Pipe Line Limited changed its corporate name to Interhome Energy Inc. However, the pipeline operations are being conducted under the business name Interprovincial Pipe Line Company, a division of Interhome Energy Inc.

Energy Board Jurisdiction

GAS EXPORT LICENCE HOLDERS

Alberta and Southern Gas Co. Ltd. (Alberta and Southern)
Alberta Northeast Gas Ltd⁴ (ANE)
AEC Oil and Gas Company (AEC)
ATCOR Ltd. (ATCOR)
Canadian Hunter Explorations Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Columbia Gas Development of Canada Ltd. (Columbia Gas)
Consolidated Natural Gas Limited (Consolidated)
Esso Resources Canada Ltd. (Esso Resources)
ICG Transmission Holdings Ltd. (ICG Transmission)
KannGaz Producers Ltd. (KannGaz)
Many Islands Natural Gas (Canada) Limited (Many Islands)
Niagara Gas Transmission Limited (Niagara Gas)
Pan-Alberta Gas Ltd. (Pan-Alberta)
ProGas Limited (ProGas)
Shell Canada Limited (Shell)
Sulpetro Limited (Sulpetro)
Tenneco LNG Inc. (Tenneco LNG)
TransCanada PipeLines Limited (TransCanada)
Transcontinental Gas Pipe Line Corporation (Transcontinental)
Union Gas Limited (Union Gas)
Westcoast Transmission Company Limited (Westcoast)

ELECTRIC POWER LICENCEES AND CERTIFICATE HOLDERS⁵

Boise Cascade Canada Ltd. (Boise Cascade)
British Columbia Hydro and Power Authority (B.C. Hydro)
Canadian Niagara Power Company Limited (Canadian Niagara)
The Canadian Transit Company (Canadian Transit)
Cedars Rapids Transmission Company, Limited (Cedars Rapids)
Cominco Ltd. (Cominco)
Cornwall Electric (Cornwall Electric)⁶
The Detroit and Windsor Subway Company (Detroit and Windsor)
Fraser Inc. (Fraser Inc.)
Hydro-Québec (Hydro-Québec)
Maine and New Brunswick Electrical Power Company, Limited
(Maine and New Brunswick)
The Manitoba Hydro-Electric Board (Manitoba Hydro)
The New Brunswick Electric Power Commission (New Brunswick Power)
Ontario Hydro (Ontario Hydro)
Saskatchewan Power Corporation (Saskatchewan Power)
West Kootenay Power and Light Company, Limited (West Kootenay)

4 ANE holds licences jointly with AEC, ATCOR, ProGas and TransCanada.

5 All the licensees, except Cornwall Electric, export over their own facilities, for which Board certificates have been issued. Cornwall Electric exports its power over the facilities of Cedars Rapids.

6 Effective 1 January 1988, St. Lawrence Power Company and Cornwall Electric were amalgamated into one company, known as Cornwall Electric.

Metric Conversion Table

The National Energy Board uses the International System of Units (SI). The energy units most commonly referred to in this report are the gigajoule (GJ) and the petajoule (PJ). A 30-litre gasoline fill-up contains about one gigajoule of energy. A petajoule is one million gigajoules. On average, a city the size of Toronto uses a petajoule of energy for all uses (heat, light, transportation, etc.) about every 15 hours.

The following conversion table is provided for the convenience of readers who may be more familiar with the Imperial System.

Approximate Conversion Factor

1 metre (m)	= 3.28 feet
1 kilometre (km)	= 0.62 mile
1 millimetre (mm)	= 0.039 inch
1 cubic metre (m ³) of oil	= 6.3 barrels
1 cubic metre (m ³) of natural gas	= 35.3 cubic feet
1 litre (L)	= 0.22 Imperial gallon
1 kilogram (kg)	= 2.20 pounds
1 gigajoule (GJ)	= 0.95 MMBtu, or 0.95 thousand cubic feet (Mcf) of natural gas at 1000 Btu/cf
1 petajoule (PJ)	= 0.95 billion cubic feet of natural gas, or 165 000 barrels of oil, or 0.28 terawatt hours of electricity

Abbreviations

gigajoule (GJ)	= 10 ⁹ J
terajoule (TJ)	= 10 ¹² J
petajoule (PJ)	= 10 ¹⁵ J
exajoule (EJ)	= 10 ¹⁸ J
kilowatt (KW)	= 10 ³ watts
megawatt (MW)	= 10 ³ KW
megawatt hour (MW.h)	= 10 ³ KW.h
gigawatt hour (GW.h)	= 10 ⁶ KW.h
terawatt hour (TW.h)	= 10 ⁹ KW.h

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Energy Overview

1. Canadian Energy Consumption(a) (Petajoules)

	1984	1985	1986	1987	1988(e)
Petroleum (b)	3159.7	3134.6	3133.4	3213.8	3344.4
Natural Gas (c)	2031.7	2147.6	2132.0	2138.5	2340.3
Hydroelectricity (d)	1020.7	1084.5	1110.7	1127.5	1099.1
Nuclear (d) (f)	632.0	714.2	841.6	905.4	969.8
Coal	1167.4	1122.1	1039.9	1117.7	1237.2
Renewable	460.4	510.3	538.7	546.2	560.6
TOTAL FOR CANADA	8471.8	8713.3	8796.3	9049.1	9551.4

a - Includes non-energy use, own use, and conversions and includes fuel for electricity export.

b - Includes LPGs.

c - Excludes reprocessing shrinkage and includes ethane.

d - Hydro and nuclear are converted at 3.6 PJ/TW.h. and 12.1 PJ/TW.h. respectively.

If the energy were converted using the heat content of 10.5 petajoules per terawatt hour, this assumes that the amount of primary energy associated with hydro and nuclear electricity is the amount which would be required if fossil fuels were used. The amount would be:

	1984	1985	1986	1987	1988(e)
Hydroelectricity and Nuclear	3525.5	3782.9	3969.9	4074.2	4047.3

e - Estimate.

f - Includes energy used to produce steam.

Energy Overview

2. Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)

	1984	1985	1986	1987	1988(e)
Supply					
Canadian Production (a)	243.5	248.8	249.0	259.6	276.8
Imports (b)	33.2	43.4	56.6	64.7	71.7
Total Supply (d)	276.7	292.2	305.6	324.3	348.5
Disposition					
Domestic (b)	227.7	221.1	216.7	226.5	238.3
Exports (c)	49.8	75.8	93.6	99.6	112.8
Total Disposition (d)	277.5	296.9	310.3	326.1	351.1

a - Source: NEB.

b - Source: NEB Form 153 - Refinery Receipts.

c - Source: NEB Form 306 - Crude Oil Exports.

d - Total Supply does not equal total disposition due to inventory changes, etc.

e - Estimate.

Energy Overview

3. Natural Gas Supply and Disposition (Billion Cubic Metres at 101.325 KPa and 15 degrees Celsius)

	1984	1985	1986	1987	1988(e)
Net Sales in Canada	47.6	50.2	48.8	47.8	52.1
Other Uses in Canada (a)	2.1	1.0	2.2	2.0	3.6
Exports	21.4	26.2	21.1	28.0	35.9
Total Deliveries (b)	71.1	77.4	72.1	77.8	91.6

a - Includes pipeline fuel and losses and other deliveries, less imports and inventory changes.

b - Marketable pipeline gas.

e - Estimate.

Energy Overview

4. Electricity Generation and Disposition (Terawatt Hours)

	1984	1985	1986	1987	1988
Total Generation	424.9	446.4	457.2	483.2	490.0 (p)
Imports (a)	0.3	0.2	0.2	0.5	2.8
Total Supply	425.2	446.6	457.4	483.7	492.8 (p)
Demand	387.6	405.1	422.1	438.3	463.1 (p)
Exports (a)	37.6	41.5	35.3	45.4	29.7

a - Excludes exchanges between Canada and the United States.

p - Preliminary.

Oil

1. Certificates Issued During 1988 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were issued in 1988

Oil

2. Orders Issued During 1988 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Dome Petroleum Limited	XO-7-88	88-07-20	Windsor Dehydration Flush Connection and Interconnection, Ontario	35 700
Interprovincial Pipe Line Company , a division of Interhome Energy Inc.	XO-2-88	88-05-18	Pipeline Section Replacement, Alberta-Saskatchewan	700 000
Sun Pipe Line Company	XO-5-88	88-07-22	Scraper Trap Modification, Ontario	4 000
Trans Mountain Pipe Line Company Ltd.	XO-1-88	88-04-06	Pump Replacements, Scraper Trap and Manifold Connections, British Columbia	84 153 600
	XO-6-88	88-06-28	Pipe Replacement, British Columbia	100 000
Trans-Northern Pipelines Inc.	XO-3-88	88-06-24	Pipeline Lease and Interconnecting Facilities Construction, Ontario	350 000
	XO-4-88	88-06-24	24-km Pipeline Lease, Ontario	NIL

Oil

3. Orders Issued During 1988 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Interprovincial Pipe Line Company, a division of Interhome Energy Inc.	XOM-7-88	88-05-04	Replacement of Repair Sleeves, Audio/Visual and Furniture Purchases	1 510 000
	XOM-10-88	88-09-28	Modifications to Meter Manifold Valves, Scraper Trap	53 986 440
	XOM-11-88	88-10-26	Modifications to Hardisty Tank Farm and Leased Facilities at Edmonton	918 500
Interprovincial Pipe Line (NW) Ltd.	XOM-9-88	88-08-24	Modifications and Improvements to Pump Stations, Communications and Other Equipment	1 447 300
Montreal Pipe Line Limited	XOM-3-88	88-03-09	Replacement of Office and Maintenance Equipment	80 900
Petroleum Transmission Company	XOM-8-88	88-11-25	Test Equipment, Spare Parts, Terminal Control Room	162 600
Trans Mountain Pipe Line Company Ltd.	XOM-1-88	88-01-27	Permanent Liquid Scrubber, Weather Station	121 000
	XOM-13-88	88-11-29	Gangway at Westridge Dock, Battery Replacement at McMurphy Station	92 500
	XOM-14-88	88-12-14	Station and Tank Equipment, Buildings, Roads and Ground Improvement, Central Pipeline Control System	12 940 920
Trans-Northern Pipelines Inc.	XOM-2-88	88-02-24	Sleeve Replacement, Station and Office Modification, Equipment Purchase	18 380 000
	XOM-4-88	88-04-13	Pipeline Replacement, Terminal Modification	915 000
	XOM-6-88	88-05-04	Pipeline Replacement, Additional Pipe Installation	91 000
	XOM-12-88	88-11-04	Alternative Control Centre	115 000
Westspur Pipe Line Company (1985) Inc.	XOM-5-88	88-05-04	Control Instrumentation and Roof Replacement	990 000

Oil

4. Exports of Petroleum Products - 1988 (Cubic Metres)

Month	Motor Gasoline	Middle Distillate	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total (a)
January	219 347	371 868	70 163	243 006	97 956	1 002 340
February	259 122	411 314	88 080	97 230	56 354	912 100
March	325 535	378 756	54 619	176 153	53 295	988 358
April	267 321	384 384	75 084	178 741	98 248	1 003 778
May	339 844	398 495	103 164	201 245	95 127	1 137 875
June	316 542	289 387	62 873	172 949	59 333	901 084
July	292 804	307 821	65 126	151 140	61 200	878 091
August	285 199	264 996	81 890	246 901	94 500	973 487
September	262 606	335 323	75 036	267 245	0	940 210
October	296 805	423 628	47 691	178 156	91 582	1 037 862
November	287 285	345 385	63 767	141 967	0	838 403
December	213 618	525 233	59 931	202 512	84 983	1 086 277
Total (m³)	3 366 028	4 436 588	847 425	2 257 245	792 579	11 699 864
m³/d	9 197	12 122	2 315	6 167	2 166	31 967

a - Excludes propane, butane, lubricants, greases, asphalt, petrochemicals etc.

Oil

5. Exports of Canadian Crude and Equivalent - 1987 and 1988 (Cubic Metres)

	1987		1988	
	Total	Daily Average	Total	Daily Average
Amoco Production Company	2 240 498	6 138	3 851 987	10 525
Ashland Oil Inc.	1 563 294	4 283	1 702 215	4 651
Cenex	1 072 939	2 940	1 125 721	3 076
Chinese Petroleum Corporation	113 367	310	273 409	747
Cibro Sales Corporation	35 587	98	-	-
Clark Oil & Refining Corporation	3 259 617	8 930	3 851 088	10 522
Conoco Inc.	1 735 076	4 754	1 583 220	4 326
Crystal Refining	24 523	67	42 936	117
Exxon Company, U.S.A.	1 511 229	4 140	2 034 390	5 558
Frontier Oil and Refining Co.	40 482	111	218 115	596
Gotco N.V.	31 980	88	-	-
Koch Refining Company	8 602 267	23 568	9 618 497	26 280
Laketon Refining Corp.	383 725	1 051	407 513	1 113
Marathon Petroleum Company	669 711	1 835	744 830	2 035
Mobil Oil Corporation	3 776 645	10 347	3 642 397	9 952
Montana Refining Company	165 113	452	271 988	743
Murphy Oil U.S.A. Inc.	398 346	1 091	723 215	1 976
NOCO Energy Corporation	290 175	795	-	-
Pacific Refining Company	6 398	18	-	-
Pecten Trading Company	28 819	79	81 226	222
Shell International Trading	-	-	34 517	94
Shell Oil Company	250 510	686	399 119	1 091
Sohio Supply Company	271 878	745	98 845	270
Sun Refining and Marketing Co.	1 926 118	5 277	2 685 132	7 336
Texaco U.S.A.	358 930	983	183 103	500
Total Petroleum, Inc.	86 024	236	132 532	362
Transworld Oil Limited	76 005	208	-	-
Union Oil Company of California	4 426 249	12 127	4 155 280	11 353
United Refining Company	2 804 570	7 684	3 193 570	8 726
U.S. Oil & Refining Co.	192 911	529	221 948	606
TOTAL	36 342 986	99 570	41 276 789	112 778

Oil

6. Exports of Canadian Crude Oil and Equivalent (Cubic metres per day)

	1984	1985	1986	1987	1988(e)
Light Crude Oil and Equivalent	13 857	33 416	41 281	44 213	50 214
Heavy Crude Oil	36 040	41 901	52 301	55 357	62 565
Total	49 897	75 317	93 582	99 570	112 778

Gas

1. Certificates Issued During 1988 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

Applicant	Certificate No.	Issued	Facilities	Estimated Cost (\$)
TransCanada PipeLines Limited	GC-71	88-09-19	Construction and Installation of One New 12.5-MW Compressor Unit at Each of the Six Existing Stations, Manitoba and Ontario	89 570 000
	GC-72	88-09-19	Construction of a 16.3-km, 914-mm Outside Diameter Loop; and Modifications to the Existing Metering Facilities at the Niagara Check Meter Station, Ontario	21 440 000
	GC-73	88-09-19	Construction of a New 30.9-km, 914-mm Outside Diameter Pipeline from Union Gas Limited's Dawn to Lisgar Pipeline Near Kirkwall to a New Hot Tap on the Niagara Line; and, Metering Facilities Near Kirkwall, Ontario	34 630 000
	GC-74	88-12-22	(i) Three new 26.1-MW Compressor Units, Ontario (ii) One 24.8-MW Compressor Unit, Ontario (iii) Two 22.8-MW Compressor Units, Manitoba, Ontario (iv) Two 3.7-MW Compressor Units, Ontario (v) Two 3.4-MW Compressor Units, Manitoba (vi) One 3.4-MW Compressor Unit, Ontario (vii) One 2.3-MW Compressor Unit, Ontario (viii) Axial Inlet Compressor Conversion, Ontario (ix) Spare Compressor Equipment and Standby Plant Items	161 970 000
	GC-75	88-12-22	(i) 5.9-km, 1219-mm Outside Diameter Loop, Saskatchewan and Manitoba (ii) 270.7-km, 1067-mm Outside Diameter Loop, Manitoba and Ontario (iii) 6.3-km, 508-mm Outside Diameter Loop, Quebec	294 000 000
	GC-76	88-12-22	(i) 42.9-km, 1219-mm Outside Diameter Loop, Saskatchewan and Manitoba (ii) 8.4-km, 508-mm Outside Diameter Loop, Quebec	44 000 000

Gas

2. Orders Issued During 1988 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Champion Pipe Line Corporation Limited	XG-1-88	88-01-14	25-m, 60-mm Outside Diameter Lateral and Sales Tap, Quebec	55 000
Dome NGL Pipeline Ltd.	XG-2-88	88-02-02	Eastern Delivery System Lateral to the Petrosar (Corunna) Plant Site, Ontario	1 843 000
Many Islands Pipe Lines (Canada) Limited	XG-4-88	88-03-02	Tie-In to an Existing Block Valve, Saskatchewan	11 000
	XG-29-88	88-11-04	50-m, 114.3-mm Outside Diameter Pipeline Cross-over, Alberta-Saskatchewan	4 000
Minell Pipeline Ltd.	XG-12-88	88-05-25	Meter Run at McAuley Odorizing Station, Manitoba	40 000
Newex Resources Ltd.	XG-3-88	88-03-03	Two 15-km, 114.3-mm Outside Diameter Pipelines, Alberta- Saskatchewan	473 500
Novacorp International Pipelines Ltd.	XG-11-88	88-06-22	406-mm Outside Diameter Line and Metering Facility, Ontario	1 065 000
Shell Canada Products Limited	XG-23-88	88-09-07	One Primary and Three Spare 168.3-mm Outside Diameter Pipelines, Ontario	1 200 000
St. Clair Pipelines Ltd.	XG-27-88	88-10-17	700-m, 610-mm Outside Diameter Pipeline, Ontario	1 375 000
TransCanada PipeLines Limited	XG-6-88	88-05-09	Aftercooler Installations and Upgrade of Turbine/Compressor Units, Ontario	31 700 000
	XG-7-88	88-05-09	8.8-km, 914-mm Loop of the Dawn Extension, Ontario	8 193 000
	XG-8-88	88-05-09	Two 16.7-km, 914-mm Loops of the Niagara Line and Relocation of Compressor Unit, Ontario	37 160 000
	XG-9-88	88-05-09	4.5-km, 508-mm Loop of the St. Mathieu Extension, Quebec	2 528 000
	XG-10-88	88-05-09	Compressor Relocations, Ontario	2 650 000

Gas

2. (Cont'd) Orders Issued During 1988 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
	XG-13-88	88-06-15	19.1-km, 914-mm Loop of the Montreal Line, Ontario	15 654 000
	XG-17-88	88-08-24	Bowmanville and Dale Meter Stations, Ontario	732 000
	XG-18-88	88-08-10	Rugby Meter Station, Ontario	268 000
	XG-20-88	88-08-24	Bayhurst I Receipt Station, Saskatchewan	1 620 000
	XG-21-88	88-08-04	Ancaster Interconnection, Ontario	1 530 000
	XG-22-88	88-09-07	St. Polycarpe Meter Station, Quebec	150 000
	XG-24-88	88-09-19	16.3-km, 914-mm Outside Diameter Loop, Ontario	See GC-72
	XG-25-88	88-09-19	30.9-km, 914-mm Outside Diameter Kirkwall Line, Ontario	See GC-73
	XG-30-88	88-12-22	(i) 68.8-km, 1067-mm Outside Diameter Loop, Ontario (ii) 5.9-km, 1219-mm Outside Diameter Loop, Manitoba (iii) 201.9-km, 1067-mm Outside Diameter Loop, Manitoba and Ontario (iv) 6.3-km, 508-mm Outside Diameter Loop, Quebec	See GC-75
	XG-31-88	88-12-22	(i) 13.7-km, 1219-mm Outside Diameter Loop, Saskatchewan (ii) 4.7-km, 508-mm Outside Diameter Loop, Quebec (iii) 3.4-km, 1219-mm Outside Diameter Loop, Saskatchewan (iv) 25.8 km, 1219-mm Outside Diameter Loop, Manitoba (v) 3.7-km, 508-mm Outside Diameter Loop, Quebec	See GC-76

Gas

2. (Cont'd) Orders Issued During 1988 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Westcoast Energy Inc.	XG-5-88	88-04-07	Umbach Pipeline, British Columbia	3 450 000
	XG-14-88	88-07-27	Unocal Mason Meter Station No. 77, British Columbia	180 000
	XG-15-88	88-07-27	Aitken Creek Meter Station No. 36, British Columbia	1 120 000
	XG-16-88	88-08-10	North Jedney Pipeline Extension, British Columbia	3 190 000
	XG-19-88	88-08-17	Norcen Metering Facility, British Columbia	32 000
	XG-26-88	88-10-19	Redwillow Pipeline, British Columbia	1 400 000
	XG-28-88	88-10-19	Laprise Offload Project, British Columbia	14 900 000

Gas

3. Orders Issued During 1988 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Alberta Natural Gas Company Ltd	XGM-1-88	88-01-27	Loop Tie-In, Equipment Upgrade	4 193 100
	XGM-7-88	88-04-13	Pipe Replacement	2 600 000
	XGM-19-88	88-12-02	Measurement and Regulating Equipment, Axial Inlet Conversions	3 283 250
Foothills Pipe Lines (Yukon) Ltd.	XGM-2-88	88-02-18	Datek Real Time Measurement System, Station 481	93 500
	XGM-4-88	88-03-02	Monitoring, Measurement and Valve Equipment, Electrical Upgrade	3 086 200
	XGM-12-88	88-08-17	Schrader Creek Vortex Meter	154 000
Many Islands Pipe Lines (Canada) Limited	XGM-15-88	88-10-26	Tie-In	5 800
TransCanada PipeLines Limited	XGM-3-88	88-03-02	Pipe Replacements, Valve Modification, Metering Upgrades	23 722 000
	XGM-6-88	88-04-06	Pipe Replacements	3 000 000
	XGM-9-88	88-07-06	Pipes, Valves and Controls Replacement	7 738 000
	XGM-14-88	88-09-19	Additional Contingency	300 000
	XGM-18-88	88-12-21	Pipeline Lowerings, Pipe Replacements, Cathodic Protection	20 445 000
Trans Québec & Maritimes Pipeline Inc.	XGM-13-88	88-08-30	Office Furniture, Transportation and Heavy Work Equipment Replacement	137 900
	XGM-16-88	88-10-26	Leasehold Improvements	678 080
Westcoast Energy Inc.	XGM-5-88	88-03-16	Pipe Replacement , Equipment Upgrade, Office Services Improvements	2 049 000
	XGM-8-88	88-05-18	Plant Improvements, Office and Mobile Equipment	559 000
	XGM-10-88	88-07-27	Electronic Measurement Equipment	366 400
	XGM-11-88	88-08-10	Replacement and Modification of Equipment	1 150 000
	XGM-17-88	88-11-04	Pipe Replacements, Equipment Upgrade, Office Services	437 000

Gas

4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1988

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Alberta and Southern Gas Co. Ltd.	GL-99	Kingsgate, BC.	1986-12-18	1987-10-31	31 897.2	9 340.9	77 626.5
			1987-11-01	1994-10-31	31 897.2	10 580.4	
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	GL-105	Iroquois, Ont.	1988-11-01	2003-10-31	495.7	180.9	2 714.0
Alberta Northeast Gas Ltd. and ATCOR Ltd.	GL-104	Iroquois, Ont.	1988-11-01	2003-10-31	991.5	361.9	5 428.0
Alberta Northeast Gas Ltd. and ProGas Limited	GL-103	Iroquois, Ont.	1988-11-01	2003-10-31	1 869.6	682.4	10 236.0
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	GL-102	Iroquois, Ont.	1988-11-01	2003-10-31	6 614.6	2 414.0	42 646.0
		Niagara Falls, Ont.	1988-11-01	2003-10-31	1 175.6	429.1	42 646.0
Canadian Hunter Explorations Ltd.	GL-107	Niagara Falls & Iroquois, Ont.	1990-11-01	2010-10-31	845.0	254.0	3 381.0
Canadian-Montana Pipe Line Company	GL-17	Aden/Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	1966-11-01	1967-10-31	339.9	103.4	4 652.8
			1967-11-01	1989-10-31	679.9	206.8	
	GL-25	Aden/Cardston, Alta., Emerson, Man. & Niagara Falls, Ont.	1968-11-01	1969-10-31	339.9	103.4	4 890.8
			1969-11-01	1991-10-31	679.9	206.8	
			1991-11-01	1993-10-31	390.9	119.0	
	GL-72	Aden, Alta.	1988-01-01	1988-10-31	1 133.1	236.1	1 085.7
			1988-11-01	1990-10-31	1 133.1	283.3	
			1990-11-01	1991-10-31	754.6	188.7	
			1991-11-01	1992-10-31	377.3	94.3	
	GO-3-79	Reagan Field, Alta.	1979-05-01	1993-12-31	30.0	10.3	105.0
Consolidated Natural Gas Limited	GL-75	Emerson, Man., & Monchy, Sask. combined maximum	1987-11-01	1988-09-14	3 824.3	1 299.2	2 792.0
			1988-09-15	1988-10-31	5 663.4	186.8	
			1988-11-01	1989-10-31	5 663.4	2 067.0	
		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	1987-11-01	1988-09-14	1 912.2	649.6	1 396.0
			1988-09-15	1988-10-31	2 831.7	93.4	
Esso Resources Canada Ltd.	GL-82	Niagara Falls, Ont.	1988-11-01	1989-10-31	2 831.7	1 033.5	
			1984-02-05	1984-10-31	2 125.0	340.0	4 653.7
			1984-11-01	1988-10-31	2 125.0	775.6	
			1988-11-01	1989-10-31	2 125.0	745.9	
			1989-11-01	1990-10-31	850.0	310.2	
			1990-11-01	1991-10-31	425.0	155.1	

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1988

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
ICG Transmission Holdings Ltd.	GL-28	Sprague, Man.	1970-11-01	1995-10-31	80.3	9.5	229.0
	GL-29	Fort Frances, Ont.	1970-11-01	1995-10-31	915.6	218.5	5 462.2
	GL-30 (a)	Sprague, Man.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
KannGaz Producers Ltd.	GL-77	Niagara Falls, Ont.	1987-11-01	1996-10-31	3 540.0	1 292.1	13 567.0
			1996-11-01	1997-10-31	2 655.0	969.1	
			1997-11-01	1998-10-31	1 770.0	646.0	
			1998-11-01	1999-10-31	885.0	323.0	
Many Islands Natural Gas (Canada) Limited	GL-44 (b)	Emerson, Man.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
Niagara Gas Transmission Limited	GL-78	Cornwall, Ont.	1987-11-01	1990-10-31	1 200.0	275.0	1 099.7
			1990-11-01	1991-10-31	799.2	183.1	
			1991-11-01	1992-10-31	399.2	91.6	
Pan-Alberta Gas Ltd.	GL-95	Emerson, Man., & Niagara Falls, Ont. combined maximum	1987-11-01	1996-10-31	4 332.5	1 581.4	16 604.7
			1996-11-01	1997-10-31	3 249.4	1 186.0	
			1997-11-01	1998-10-31	2 166.2	790.7	
			1998-11-01	1999-10-31	1 083.1	395.4	
		Maximum permitted at Niagara Falls, Ont. as part of combined Emerson/Niagara Falls volumes	1987-11-19	1996-10-31	1 442.7	526.6	
			1996-11-01	1997-10-31	1 082.1	394.9	
			1997-11-01	1998-10-31	721.3	263.3	
			1998-11-01	1999-10-31	360.7	131.7	
	GL-97	Monchy, Sask.	1984-12-20	1985-10-31	24 928.5	7 582.8	75 296.7
			1985-11-01	1994-10-31	24 928.5	8 294.4	
			1994-11-01	1995-10-31	16 602.4	5 524.1	
			1995-11-01	1996-10-31	8 301.2	2 762.0	
	GL-106	Kingsgate, BC.	1988-11-01	2012-10-31	7 478.6	2 488.3	59 719.2
ProGas Limited	GL-80	Niagara Falls, Ont.	1987-11-01	1996-10-31	1 420.0	518.3	5 442.1
			1996-11-01	1997-10-31	1 065.0	388.7	
			1997-11-01	1998-10-31	710.0	259.1	
			1998-11-01	1999-10-31	355.0	129.6	
	GL-81	Emerson, Man.	1987-11-01	1996-10-31	5 270.0	1 923.5	20 196.7
			1996-11-01	1997-10-31	3 952.5	1 442.6	
			1997-11-01	1998-10-31	2 635.0	961.7	
			1998-11-01	1999-10-31	1 317.5	480.9	

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1988

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
ProGas Limited (Cont'd)	GL-98	Emerson, Man., & Monchy, Sask. combined maximum	1986-08-13	1986-10-31	9 440.9	2 583.2	12 177.8
			1986-11-01	1987-10-31	7 552.7	2 480.0	
			1987-11-01	1990-10-31	9 440.9	3 100.0	
			1990-11-01	1991-10-31	7 552.7	2 480.0	
			1991-11-01	1992-10-31	5 664.5	1 860.0	
			1992-11-01	1993-10-31	3 776.4	1 240.0	
			1993-11-01	1994-10-31	1 888.2	620.0	
		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	1986-08-13	1986-10-31	6 797.4	2 480.0	10 988.5
			1986-11-01	1987-10-31	3 776.3	1 240.0	
			1987-11-01	1990-10-31	4 720.4	1 550.0	
			1990-11-01	1991-10-31	3 776.3	1 240.0	
			1991-11-01	1992-10-31	2 832.2	930.0	
			1992-11-01	1993-10-31	2 125.0	698.0	
			1993-11-01	1994-10-31	1 888.2	620.0	
	GL-101	Niagara Falls, Ont.	1989-05-01	1989-10-31	1 420.0	260.6	10 340.0
			1989-11-01	1992-10-31	1 420.0	517.0	
			1992-11-01	2009-10-31	1 420.0	517.0	
Shell Canada Limited	GL-100	Highwater, Que.	1987-11-01	1998-10-31	1 110.0	300.0	7 100.0
			1998-11-01	1999-03-31	1 110.0	300.0	
		Niagara Falls, Ont.	1987-11-01	1998-10-31	1 390.0	400.0	
			1998-11-01	1999-03-31	1 390.0	400.0	
			1987-11-01	1998-10-31	1 390.0	400.0	
			1998-11-01	1999-03-31	1 390.0	400.0	
TransCanada PipeLines Limited	GL-18	Emerson, Man. & Niagara Falls, Ont.	1965-11-01	1966-10-31	708.2	1 226.6	33 993.4
			1966-11-01	1989-10-31	4 277.5	1 481.5	
	GL-19	Philipsburg, Que.	1965-11-01	1982-10-31	600.6	184.1	3 059.4
			1982-11-01	1983-10-31	634.5	184.1	
			1983-11-01	1984-10-31	657.2	184.1	
			1984-11-01	1986-10-31	702.5	184.1	
			1986-11-01	1987-10-31	793.2	184.1	
			1987-11-01	1988-10-31	849.8	184.1	
			1988-11-01	1989-10-31	906.5	184.1	
	GL-20	Emerson, Man.	1967-11-01	1991-10-31	2 662.8	909.3	21 670.8
	GL-21 (c)	Emerson, Man.	1968-11-05	1991-10-31	0.0	7 019.1	169 967.0
	GL-37	Emerson, Man.	1970-11-01	1990-10-31	5 546.6	2 030.1	40 601.0
	GL-38	Emerson, Man.	1970-11-01	1990-10-31	1 416.4	518.4	10 368.0
	GL-39	Emerson, Man.	1970-11-01	1990-10-31	204.0	74.6	1 493.0
	GL-42 (c)	Emerson, Man.	1971-04-15	1971-10-31	N/S	232.8	60 316.5
			1971-11-01	1994-10-31	N/S	2 612.3	

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1988

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
TransCanada PipeLines Limited (Cont'd)	GL-43	Emerson, Man.	1971-11-01	1991-10-31	N/S	481.6	9 631.5
	GL-83	Niagara Falls, Ont.	1984-11-01	1986-10-31	1 133.1	414.0	9 350.2
			1986-11-01	1994-10-31	2 620.3	959.0	
			1994-11-01	1995-10-31	1 521.3	556.8	
			1995-11-01	1996-10-31	774.3	283.4	
	GL-84	Niagara Falls, Ont.	1987-11-01	1988-10-31	142.0	51.8	2 378.0
			1988-11-01	1997-10-31	708.0	258.4	
	GL-86	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
			1998-11-01	1999-10-31	708.2	259.2	
	GL-87	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
			1998-11-01	1999-10-31	708.2	259.2	
	GL-89	Emerson, Man.	1984-11-01	1985-10-31	6 317.1	524.1	12 960.8
			1985-11-01	1986-10-31	6 317.1	1 957.3	
			1986-11-01	1990-10-31	6 317.1	2 096.3	
			1990-11-01	1991-10-31	4 207.2	1 396.1	
			1991-11-01	1992-10-31	2 103.6	698.1	
	GL-90	Niagara Falls, Ont.	1987-11-01	1988-10-31	1 416.4	518.4	5 443.2
			1988-11-01	1991-10-31	1 416.4	517.0	
			1991-11-01	1992-10-31	1 416.4	518.4	
			1992-11-01	1995-10-31	1 416.4	517.0	
			1995-11-01	1996-10-31	1 416.4	518.4	
			1996-11-01	1997-10-31	1 091.3	398.3	
			1997-11-01	1998-10-31	708.2	258.5	
			1998-11-01	1999-10-31	354.1	129.2	
Union Gas Limited	GL-92	Windsor, Ont.	1985-11-01	1990-10-31	1 100.0	284.0	1 703.7
			1990-11-01	1991-10-31	732.6	189.1	
			1991-11-01	1992-10-31	366.3	94.6	

Gas

4. (Cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1988

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Westcoast Energy Inc.	GL-41	Huntingdon/Kingsgate, B.C. & Monchy, Sask. combined maximum	1971-11-01	1972-10-31	20 773.9	7 223.1	143 495.2
			1972-11-01	1980-10-31	22 922.9	7 970.3	
			1980-11-01	1982-10-31	24 622.6	7 970.3	
			1982-11-01	1983-03-31	24 622.6	3 299.7	
			1983-04-01	1983-10-31	26 039.0	4 706.2	
			1983-11-01	1989-10-31	26 039.0	8 067.8	
		Maximum permitted at Kingsgate, BC. as part of combined Huntingdon/Kingsgate/Monchy volumes	1973-11-01	1979-10-31	22 922.9	7 970.3	
			1983-04-01	1988-02-10	2 832.8	1 036.8	
			1988-02-11	1989-10-31	4 306.0	1 576.0	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/Kingsgate/Monchy volumes	1983-04-01	1988-02-10	1 416.4	517.0	
	GL-93	Huntingdon, BC.	1989-11-01	1992-10-31	8 498.3	3 101.9	13 958.6
			1992-11-01	1993-10-31	6 373.3	2 326.4	
			1993-11-01	1994-10-31	4 249.1	1 550.9	
			1994-11-01	1995-10-31	2 124.6	775.5	
	GL-94	Huntingdon/Kingsgate, B.C. & Monchy, Sask. combined maximum	1989-11-01	1990-10-31	13 731.0	4 637.1	9 269.5
			1990-11-01	1991-10-31	9 144.8	3 088.3	
			1991-11-01	1992-10-31	4 572.4	1 544.1	
		Maximum permitted at Kingsgate, BC. as part of combined Huntingdon/Kingsgate/Monchy volumes	1989-11-01	1990-10-31	2 832.8	1 034.0	
			1990-11-01	1991-10-31	2 832.8	1 034.0	
			1991-11-01	1992-10-31	2 832.8	1 036.8	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/Kingsgate/Monchy volumes	1989-11-01	1990-10-31	1 416.4	517.0	
			1990-11-01	1991-10-31	1 416.4	517.0	
			1991-11-01	1992-10-31	1 416.4	517.0	

a - This licence authorizes an export near Sprague, Manitoba for import near Rainy River, Ont.

b - This licence authorizes the export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.

c - This licence authorizes an export near Emerson, Manitoba for import near Sault Ste-Marie and Sarnia, Ont., to serve the eastern Canadian market.

N/S Not Specified.

Gas

5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1988

Importer	Licence or Order Number	Point of Import	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Border Utilities Ltd.	GO-8-86	Coutts, Alta.	1986-01-28	1988-12-31	30.0	N/S	N/S
Canadian Western Natural Gas Company Ltd.	GO-117-88	Coutts, Alta.	1989-01-01	2005-12-31	30.0	N/S	N/S
ICG Transmission Holdings Ltd.	GL-30 (a)	Rainy River, Ont.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
Many Islands Natural Gas (Canada) Limited	GLI-5 (b)	Willow Creek, Sask.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
TransCanada PipeLines Limited	GL-21 (c)	Sault Ste-Marie and Sarnia, Ont.	1968-11-05	1991-10-31	N/S	7 019.1	169 967.0
	GL-42 (c)	Sault Ste-Marie and Sarnia, Ont.	1971-04-15 1971-11-01	1971-10-31 1994-10-31	N/S N/S	232.8 2 612.3	60 316.5

a - This licence authorizes an import of natural gas which the licensee has exported near Sprague, Man.

b - This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Manitoba, pursuant to Licence GL-44.

c - This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Manitoba.
This natural gas serves Canadian markets.

N/S Not Specified.

Gas

6. Licences and Long-Term Orders to Export and/or Import

Propane, Butanes, Ethane and Ethylene as at 31 December 1988

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
PROPANE							
Amoco Canada Petroleum Company Ltd. (Export)	GL-32	Can/US Border (a)	-	1971-01-01	1972-12-31	92 698	4 281 799
				1973-01-01	1973-12-31	569 761	
				1974-01-01	1974-12-31	519 682	
				1975-01-01	1975-12-31	506 190	
				1976-01-01	1976-12-31	483 571	
				1977-01-01	1977-12-31	456 825	
				1978-01-01	1993-12-31	92 698	
				1994-01-01	1994-12-31	77 206	
Dome Petroleum Ltd. (Export)	GL-31	Can/US Border (a)	-	1971-01-01	1972-12-31	133 254	9 757 486
				1973-01-01	1973-12-31	924 999	
				1974-01-01	1974-12-31	870 078	
				1975-01-01	1975-12-31	847 301	
				1976-01-01	1976-12-31	812 936	
				1977-01-01	1977-12-31	775 793	
				1978-01-01	1978-12-31	744 761	
				1979-01-01	1979-12-31	716 983	
				1980-01-01	1980-12-31	688 571	
				1981-01-01	1981-12-31	656 190	
				1982-01-01	1982-12-31	620 476	
				1983-01-01	1986-12-31	133 254	
				1987-01-01	1987-12-31	143 809	
				1988-01-01	1988-12-31	193 016	
				1989-01-01	1989-12-31	196 984	
				1990-01-01	1990-12-31	169 047	
				1991-01-01	1991-12-31	165 873	
				1992-01-01	1992-12-31	165 079	
				1993-01-01	1993-12-31	162 098	
				1994-01-01	1994-12-31	103 968	
Amoco Canada Petroleum Company Limited (Export/Import)	EPR-918-79 (c)	Can/US Border (a)	Can/US Border (d)	1979-09-06	1996-01-31	N/S	N/S
(Import/Export)	EPR-941-87	Sarnia, Ont.	Can/US Border (c)	1987-06-09	1989-05-31	N/S	N/S
Canstates Energy (Export/Import)	EPR-939-87	Can/US Border (k)	Can/US Border (k)	1987-02-06	1991-12-31	N/S	N/S
	EPR-943-88	Can/US Border (a)	Can/US Border (d)	1988-01-25	1992-12-31	N/S	N/S
Dome Petroleum Limited (Export/Import)	EPR-917-79 (c)	Can/US Border (a)	Can/US Border (d)	1979-09-06	1996-01-31	N/S	N/S

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1988

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
Dome Petroleum Limited (Import/Export)	EPR-930-84	Sarnia, Ont.	Can/US Border (d)	1984-04-01	1984-12-31	458 335	N/S
				1985-01-01	1985-12-31	608 335	
				1986-01-01	1986-12-31	608 335	
				1987-01-01	1987-12-31	608 335	
				1988-01-01	1988-12-31	608 335	
				1989-01-01	1989-12-31	608 335	
				1990-01-01	1990-12-31	608 335	
				1991-01-01	1991-12-31	608 335	
				1992-01-01	1992-04-15	153 100	
ICG Liquid Gas Ltd (Export/Import)	EPR-944-88	Can/US Border (a)	Can/US Border (d)	1988-05-04	1993-04-30	N/S	N/S
Imperial Oil Limited (Export/Import)	EPR-922-80 (b)	Gretna, Man.	Sarnia, Ont.	1980-09-01	1990-08-31	N/S	N/S
PanCanadian Gas Products Limited (Export/Import)	EPR-919-79 (c)	Can/US Border (a)	Can/US Border (d)	1979-09-06	1991-01-31	N/S	N/S
Petrosar Limited (Export/Import)	EPR-940-87	Can/US Border (k)	Can/US Border (k)	1987-06-09	1992-06-30	N/S	N/S
Superior Propane Inc. (Export/Import)	EPR-942-87	Alameda, Sask.	Windsor, Ont.	1987-06-18	1992-06-30	N/S	N/S
Texaco Canada Inc. (Export/Import)	EPR-945-88	Can/US Border (a)	Can/US Border (d)	1988-06-13	1993-06-12	N/S	N/S

BUTANES

Amoco Canada Petroleum Company Limited (Export/Import)	EBU-133-74 (e)	Gretna, Man.	Sarnia, Ont.	1974-07-01	1974-12-31	236 214	7 914 026
				1975-01-01	1975-12-31	521 326	
				1976-01-01	1976-12-31	661 936	
				1977-01-01	1977-12-31	653 789	
				1978-01-01	1978-12-31	659 681	
				1979-01-01	1979-12-31	618 088	
				1980-01-01	1980-12-31	575 893	
				1981-01-01	1981-12-31	540 176	
				1982-01-01	1982-12-31	488 674	
				1983-01-01	1983-12-31	423 848	
				1984-01-01	1984-12-31	374 315	
				1985-01-01	1985-12-31	-	
				1986-01-01	1986-12-31	-	
				1987-01-01	1987-12-31	-	
				1988-01-01	1988-12-31	-	
				1989-01-01	1989-12-31	-	

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1988

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
Amoco Canada Petroleum Company Limited (Cont'd) (Export/Import)				1990-01-01	1990-12-31	-	
				1991-01-01	1991-12-31	-	
				1992-01-01	1992-12-31	-	
				1993-01-01	1993-12-31	-	
				1994-01-01	1994-12-31	-	
				1995-01-01	1995-12-31	-	
(Import/Export)	EBU-941-87	Sarnia, Ont.	Can/US Border (a)	1987-06-09	1989-05-31	N/S	N/S
Dome Petroleum Limited (Export/Import)	EBU-132-74 (e)	Gretna, Man.	Sarnia, Ont.	1974-07-01	1974-12-31	309 537	9 357 529
				1975-01-01	1975-12-31	513 353	
				1976-01-01	1976-12-31	611 593	
				1977-01-01	1977-12-31	599 762	
				1978-01-01	1978-12-31	635 462	
				1979-01-01	1979-12-31	603 129	
				1980-01-01	1980-12-31	580 324	
				1981-01-01	1981-12-31	556 375	
				1982-01-01	1982-12-31	532 601	
				1983-01-01	1983-12-31	502 284	
				1984-01-01	1984-12-31	452 809	
				1985-01-01	1985-12-31	-	
				1986-01-01	1986-12-31	-	
				1987-01-01	1987-12-31	-	
				1988-01-01	1988-12-31	-	
				1989-01-01	1989-12-31	-	
				1990-01-01	1990-12-31	-	
				1991-01-01	1991-12-31	-	
				1992-01-01	1992-12-31	-	
				1993-01-01	1993-12-31	-	
				1994-01-01	1994-12-31	-	
				1995-01-01	1995-12-31	-	
Canstates Energy (Export/Import)	EBU-939-87	Sarnia, Ont.	Can/US Border (k)	1987-02-06	1991-12-31	N/S	N/S
	EBU-942-88	Can/US Border	Can/US Border (a)	1988-01-25	1992-12-31	N/S	N/S
Imperial Oil Limited (Export/Import)	EBU-911-80 (e)	Gretna, Man.	Sarnia, Ont.	1980-09-01	1990-08-31	N/S	N/S
PanCanadian Gas Products Limited (Export/Import)	EBU-134-74 (e)	Gretna, Man.	Sarnia, Ont.	1974-07-01	1974-12-31	167 570	3 774 595
				1975-01-01	1975-12-31	212 599	
				1976-01-01	1983-12-31	213 822	
				1984-01-01	1990-12-31	240 550	
Petrosar Limited (Export/Import)	EBU-940-87	Sarnia, Ont.	Can/US Border (a)	1987-06-01	1992-12-31	N/S	N/S

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1988

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
Texaco Canada Inc. (Export/Import)	EBU-916-82	Gretna, Man.	Sarnia, Ont.	1982-07-01	1992-06-30	N/S	N/S
	EBU-943-88	Alameda, Sask.	Windsor, Ont.	1988-06-13	1993-06-12	N/S	N/S
Dome Petroleum Limited (Import/Export)	EBU-929-84	Sarnia, Ont.	Can/US Border (f)	1984-04-01	1984-12-31	340 650	N/S
				1985-01-01	1991-12-31	452 135	
				1992-01-01	1992-04-15	128 825	

ETHANE

Dome Petroleum Limited (Export)	GL-51 (g)(h)	Export-Elmore, Sask. Re-Export - Windsor, Ont.	Windsor, Ont.	1979-06-21	1979-12-31	1 287 000	19 069 000
				1980-01-01	1980-12-31	1 090 000	
				1981-01-01	1981-12-31	935 000	
				1982-01-01	1982-12-31	1 114 000	
				1983-01-01	1983-12-31	1 241 000	
				1984-01-01	1984-12-31	1 424 000	
				1985-01-01	1985-12-31	2 000 000	
				1986-01-01	1986-12-31	2 731 000	
				1987-01-01	1987-12-31	2 304 000	
				1988-01-01	1988-12-31	1 891 000	
				1989-01-01	1989-12-31	1 301 000	
				1990-01-01	1990-12-31	765 000	
				1991-01-01	1991-12-31	602 000	
				1992-01-01	1992-12-31	280 000	
				1993-01-01	1993-12-31	104 000	

ETHYLENE

						Kilograms	
Dow Chemical of Canada Limited (Export)	EYL-1-76 (i)	Elmore, Sask.	Sarnia, Ont.	1980-01-01	1989-12-31	158 757 340	1 587 573 400
		Sarnia, Ont. Windsor, Ont.	Windsor, Ont.				
Dow Chemical of Canada Limited (Export/Import)	EYL-2-76 (j)	Elmore, Sask.	Windsor, Ont.	1978-01-01	1997-12-31	181 438 810	N/S

- a - For each licence or order the Canada/US Border export points include one or more of the following ports: Elmore, Sask., Gretna, Man., Sarnia and Windsor, Ont.
- b - This order authorizes propane exports at Gretna, Man. for subsequent import at Sarnia, Ont.
- c - This order authorizes propane exports at any point on the Canada/US Border for subsequent import of the same propane within 30 days after the day of export.
- d - For each order the Canada/US Border import points include either Sarnia or Windsor, Ont. or both.
- e - This order authorizes export of butanes at Gretna, Man. for subsequent import at Sarnia, Ont.
- f - This order authorizes imports of butanes at Sarnia and Windsor, Ont., for subsequent export at any point along the

Gas

6. (Cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1988

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
		Canada/US border (namely Sarnia and Windsor, Ont.).					
g -		This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.					
h -		Authorized exports of ethane in each year during the period 1982-01-01 to 1985-12-31 shall be reduced by the equivalent quantity of "make-up" volumes exported under Licence GL-47 which is in excess of 392 728 m ³ .					
i -		This is an export licence which authorizes the export of ethylene at Elmore, Sask., and at Sarnia and Windsor, Ontario. All or a portion of the quantity of ethylene exported at Elmore, Sask., may be imported at Sarnia and Windsor, Ontario for subsequent re-export at Sarnia and Windsor, Ont.					
j -		This order authorizes an export of ethylene at Elmore, Sask., for subsequent import at Windsor, Ont.					
k -		This licence authorizes export of propane which will be placed in storage in Marysville, Michigan, for subsequent return to Canada at Canada/US border near Sarnia, Ont.					

Gas

7. Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1987	1988	Cumulative to 31 December 1988
Alberta and Southern Gas Co. Ltd.	GL-99	10 419.5	10 819.9	21 682.4
Amoco Canada Petroleum Company Ltd.	GO-10-85	7.3	-	75.9
	GO-104-86	12.4	2.0	14.4
	GO-67-87	0.0	5.3	5.3
	GO-80-88	-	28.6	28.6
Bonanza Resources Ltd.	GO-58-86	15.0	0.0	15.0
	GO-59-86	17.0	0.0	17.0
Bonus Gas Processors Corp.	GO-78-86	65.2	13.8	78.9
	GO-109-87	0.0	2.8	2.8
	GO-88-88	-	0.2	0.2
BP Resources Canada Limited	GO-68-88	-	26.5	26.5
Brymore Gas (Canada) Inc.	GO-80-86	9.7	0.0	12.3
Canadian Hydrocarbons Limited	GO-14-87	92.7	21.0	113.7
	GO-10-88	-	327.2	327.2
Canadian Occidental Petroleum Ltd.	GO-102-87	-	4.9	4.9
	GO-18-88	-	33.8	33.8
Canadian-Montana Pipe Line Company	GL-5	0.0	-	6 386.4
	GL-17	0.0	0.0	3 035.3
	GL-25	0.0	0.0	3 516.3
	GL-36	0.0	-	1 183.2
	GL-52	187.8	-	1 155.8
	GL-72	-	221.1	221.1
	GO-3-79	4.1	4.8	27.8
Canterra Energy Ltd.	GO-10-87	8.9	0.1	9.0
	GO-108-87	-	21.4	21.4
	GO-14-88	-	18.8	18.8
Carvin Natural Gas Marketing Ltd.	GO-114-88	-	8.9	8.9
Cherhill Resources Limited	GO-22-88	-	27.7	27.7
Chevron Canada Resources Limited	GO-105-87	0.0	0.8	0.8
	GO-21-88	-	1.4	1.4
	GO-43-88	-	3.4	3.4
	GO-86-88	-	3.7	3.7
Consolidated Natural Gas Limited	GL-61	429.6	0.0	5 205.0
	GL-75	186.1	1 106.2	1 292.3
	GO-89-86	142.2	36.0	246.4
	GO-92-86	137.9	97.6	308.2

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1987	1988	Cumulative to 31 December 1988
Czar Resources Ltd.	GO-30-86	46.6	24.5	100.5
	GO-28-88	-	95.5	95.5
Dome Petroleum Limited	GO-22-85	0.0	-	2.5
	GO-14-86	0.0	0.0	0.5
	GO-101-86	104.4	98.1	212.1
	GO-15-87	16.1	8.2	24.3
	GO-16-87	39.1	54.9	94.1
	GO-66-87	0.0	4.6	4.6
	GO-94-88	-	23.4	23.4
Encor Energy Corporation Inc.	GO-107-87	-	1.1	1.1
Esso Resources Canada Limited	GO-103-87	0.0	155.7	155.7
	GO-26-88	-	36.1	36.1
Esso Resources Canada Ltd and Transco Energy Mark.Co	GO-38-88	-	455.3	455.3
Esso Resources Canada Ltd.	GL-82	279.4	0.0	1 810.5
Hadson Canada Inc.	GO-90-87	0.0	1.6	1.6
ICG Transmission Holdings Ltd.	GL-28	0.1	0.0	129.7
	GL-29	0.7	0.0	2 690.3
	GL-30 (b)	171.5	200.0	4 614.0
	GO-98-86	6.1	-	8.6
	GO-99-86	57.5	-	74.0
	GO-100-86	14.8	-	18.7
	GO-82-87	2.1	7.3	9.4
	GO-83-87	17.4	88.9	106.3
	GO-96-88	-	20.6	20.6
	GO-99-88	-	2.5	2.5
Imperial Oil Limited	GO-84-86 (c)	102.5	79.3	204.2
KannGaz Producers Ltd.	GL-77	8.6	46.5	55.1
KM Gas Company	GO-81-86	33.8	3.4	37.2
Koch Hydrocarbons Canada	GO-101-87	0.0	5.5	5.5
Many Islands Natural Gas (Canada) Limited	GL-44 (a)	306.0	421.0	6 565.9
Maxus Energy Canada Ltd.	GO-23-85	4.2	-	5.9
Mobil Oil Canada	GO-9-88	-	2.0	2.0
	GO-11-88	-	480.3	480.3
Natgas Canada Inc.	GO-19-86	0.0	-	2.0

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1987	1988	Cumulative to 31 December 1988
Niagara Gas Transmission Limited	GL-55	141.5	-	1 052.3
	GL-78	46.2	233.1	279.3
	GO-90-86	28.7	-	75.3
North Canadian Oils Limited	GO-65-88	-	9.3	9.3
Northcan Energy Inc.	GO-30-88	-	6.1	6.1
Northridge Petroleum Marketing Inc.	GO-13-85	27.3	-	96.2
	GO-25-85	14.2	-	14.2
	GO-6-86	18.7	-	18.7
Northwest Pacific Energy Marketing Inc.	GO-115-88	-	4.7	4.7
Pan-Alberta Gas Ltd.	GL-96	2 625.6	2 148.6	9 820.5
	GL-97	2 201.8	3 084.0	10 864.6
	GL-106	-	414.8	414.8
	GO-96-86	0.0	-	180.0
	GO-48-87	2 053.5	3 702.1	5 755.6
	GO-8-88	-	311.2	311.2
Petro-Canada Inc.	GO-22-87	4.7	0.0	4.7
	GO-17-88	-	269.8	269.8
Placer Cego Petroleum	GO-19-87	26.8	4.5	31.3
	GO-115-87	-	1.8	1.8
	GO-15-88	-	37.9	37.9
Poco Petroleums Ltd.	GO-34-86	54.1	-	54.1
	GO-39-86	74.9	-	74.9
	GO-87-86	337.0	477.8	817.0
	GO-88-86	10.0	19.9	29.9
	GO-72-87	1.6	4.0	5.6
	GO-74-87	11.9	124.0	135.9
	GO-110-88	-	60.2	60.2
ProGas Limited	GL-98	532.6	1 589.0	2 341.1
	GO-26-86	155.1	-	155.1
	GO-27-86	40.9	-	40.9
	GO-28-86	17.6	-	17.6
	GO-29-86	155.1	-	155.1
	GO-97-86	62.5	-	139.8
	GO-85-87	129.7	192.3	322.0
	GO-24-88	-	3.4	3.4
Shell Canada Limited	GL-100	6.4	63.5	69.8
	GO-105-86	224.7	229.6	454.3
	GO-4-88	-	0.1	0.1
	GO-16-88	-	1.3	1.3
	GO-25-88	-	96.1	96.1

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1987	1988	Cumulative to 31 December 1988
Suncor Inc.	GO-112-87	-	30.0	30.0
Tarpon Gas Marketing Ltd.	GO-2-88	-	1.1	1.1
TransCanada PipeLines Limited	GL-18	0.0	0.0	20 552.8
	GL-19	92.9	156.5	2 391.0
	GL-20	276.5	588.3	14 384.7
	GL-21 (d)	6 262.0	6 821.6	117 546.7
	GL-37	513.4	1 252.9	29 023.7
	GL-38	0.0	0.0	6 770.7
	GL-39	0.0	0.0	915.0
	GL-42 (d)	2 330.6	2 538.8	37 583.8
	GL-43	0.0	0.0	1 335.8
	GL-83	412.4	915.5	2 157.3
	GL-84	0.0	19.1	19.1
	GL-86	-	0.0	0.0
	GL-87	-	0.0	0.0
	GL-89	0.0	0.0	604.0
	GO-40-86	184.5	190.1	374.5
	GO-83-86 (e)	0.0	-	3.8
	GO-86-86	21.7	-	56.0
	GO-91-86	32.3	-	48.1
	GO-93-86	384.1	-	614.6
	GO-103-86	481.3	212.4	693.7
	GO-27-87	33.3	6.8	40.0
	GO-33-87 (f)	55.6	0.0	55.6
	GO-37-87	662.8	2 507.3	3 170.2
	GO-111-87	0.0	391.9	391.9
	GO-23-88	-	111.4	111.4
Union Enterprises Ltd.	GO-4-87 (g)	3.9	0.0	3.9
Unocal Canada Limited	GO-75-88	-	6.1	6.1
Wainoco Oil Corporation	GO-55-87	3.3	42.8	46.1
Westcoast Energy Inc.	GL-4	148.9	-	29 195.3
	GL-41	3 403.5	1 909.1	78 526.8
	GO-17-86	0.0	-	1.6
	GO-94-86	0.0	-	77.6
	GO-95-86	0.0	-	771.2
Western Gas Marketing Limited	GO-63-88	-	28.2	28.2
GROSS EXPORTS		37 252.0	45 973.5	444 917.1
NET EXPORTS (h)		28 020.0	35 912.8	278 339.3

Gas

7. (Cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1987	1988	Cumulative to 31 December 1988
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- a - This licence authorizes an export of gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.
- b - This licence authorizes an export of gas near Sprague, Man. for import near Rainy River, Ont.
- c - This order authorizes an export of gas near Emerson, Man. in exchange for an import of ethane by Dome Petroleum Limited near Sarnia, Ont.
- d - This licence authorizes an export of gas near Emerson, Man. for import near Sault Ste Marie and Sarnia, Ont. to serve the eastern Canadian markets.
- e - This order authorizes an export of gas which the order holder has imported near Niagara Falls, Ont.
- f - This order authorizes an export of gas as a pre-delivery of gas to Tennessee Gas Pipeline Company and for subsequent import near Niagara Falls, Ont.
- g - This order authorizes an export of gas which the order holder has imported near Windsor, Ont.
- h - Excludes volumes of licences/orders under footnotes.
- No data available

Gas

8. Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1987	1988	Cumulative to 31 December 1988
Border Utilities Ltd.	GO-8-86	0.7	0.7	2.1
Canadian Western Natural Gas Company Limited	GO-69-86	0.4	0.0	0.7
	GO-56-87	0.0	0.2	0.2
	GO-70-88	0.0	0.2	0.2
ICG Transmission Holdings Ltd.	GL-30 (b)	171.5	200.0	4 614.0
Many Islands Natural Gas (Canada) Limited	GLI-5 (a)	309.7	425.6	6 663.9
Northridge Petroleum Marketing Inc.	GO-45-88	0.0	0.9	0.9
St. Clair Pipelines Ltd.	GO-71-88	0.0	36.0	36.0
The Consumers' Gas Company Ltd.	GO-40-88	0.0	8.1	8.1
	GO-57-88	0.0	27.3	27.3
TransCanada PipeLines Limited	GL-21 (c)	6 445.1	6 821.6	117 487.9
	GL-42 (c)	2 320.4	2 538.8	37 656.3
	GO-83-86 (d)	0.0	0.0	3.7
	GO-33-87 (e)	32.9	0.0	32.9
Union Enterprises Ltd.	GO-3-87 (f)	3.9	0.0	3.9
	GO-121-87	0.0	55.2	55.2
	GO-41-88	0.0	55.2	55.2
Union Gas Limited	GO-82-86	21.8	0.0	63.0
	GO-65-87	56.7	0.0	56.7
	GO-84-87	13.6	0.6	14.3
	GO-39-88	0.0	60.0	60.0
	GO-50-88	0.0	60.0	60.0
	GO-61-88	0.0	1.3	1.3
	GO-66-88	0.0	60.0	60.0
	GO-77-88	0.0	60.0	60.0
	GO-100-88	-	60.0	60.0
	GO-103-88	-	68.8	68.8
	GO-118-88	-	3.5	3.5
Western Gas Marketing Limited	GO-59-88	0.0	69.9	69.9
GROSS IMPORTS		9 376.8	10 613.6	167 225.6
NET IMPORTS (g)		93.3	627.7	763.1

Gas

8. (Cont'd) Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1987	1988	Cumulative to 31 December 1988
a -	This licence authorizes an import of gas which permits the licensee to subsequently export near Emerson, Man. pursuant to Licence GL-44.			
b -	This licence authorizes an import of gas which the licensee has previously exported near Sprague, Man.			
c -	This licence authorizes an import of gas which the licensee has previously exported near Emerson, Man. This natural gas serves Canadian markets.			
d -	This order authorizes an import of gas which permits the order holder to subsequently export near Niagara Falls, Ont.			
e -	This order authorizes an import of gas which the order holder has previously exported near Niagara Falls, Ont., as a pre-delivery of gas to Tennessee Gas Pipeline Company.			
f -	This order authorizes an import of gas which permits the order holder to subsequently export near Windsor, Ont.			
g -	Excludes volumes of licences/orders under footnotes.			
-	No data available			

Gas

9. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1987 Actual	1988 Preliminary
PROPANE			
Amoco Canada Petroleum Company Limited	GL-32	92 698	92 697
	EPR-918-79 (a)	923 899	771 771
	EPR-934-86 (b)	2 286	-
	EPR-941-87(b)	3 285	5 776
Canstates Energy	EPR-939-87 (a)	5 862	0
	EPR-943-88 (a)	N/A	92 835
Dome Petroleum Limited	GL-31	143 809	193 016
	EPR-917-79 (a)	700 914	964 680
	EPR-930-84 (b)	447 713	255 587
ICG Liquid Gas Ltd.	EPR-944-88 (a)	N/A	17 750
Imperial Oil Limited	EPR-922-80 (a)	0	0
PanCanadian Gas Products Limited	GL-34	0	N/A
	EPR-919-79 (a)	242 054	280 156
Petro-Canada Inc.	EPR-934-86 (b)	0	N/A
Petrosar Limited	EPR-940-87 (a)	34 897	40 129
Procor Limited	EPR-935-86 (b)	0	N/A
Superior Propane Inc.	EPR-942-87 (a)	38 126	10 000
Texaco Canada Inc.	EPR-945-88 (a)	N/A	3 039
GROSS EXPORTS		2 635 543	2 727 436
NET EXPORTS (c)		236 507	285 713

BUTANES

Amoco Canada Petroleum Company Limited	EBU-133-74 (a)	773 341	638 690
	EBU-933-86 (b)	7 988	-
	EBU-941-87 (b)	4 305	8 643
Canstates Energy	EBU-939-87 (a)	0	0
	EBU-942-88 (a)	N/A	0
Dome Petroleum Limited	EBU-132-74 (a)	712 589	816 006
	EBU-929-84 (b)	254 937	215 307
Imperial Oil Limited	EBU-911-80 (a)	0	0

Gas

9. (Cont'd) Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Exporter	Licence or Order Number	1987 Actual	1988 Preliminary
PanCanadian Gas Products Limited	EBU-134-74 (a)	126 620	128 632
Petro-Canada Inc.	EBU-934-86 (b)	0	N/A
Petrosar Limited	EBU-940-87 (a)	0	0
Procor Limited	EBU-935-86 (b)	0	N/A
Texaco Canada Inc.	EBU-916-82 (a)	0	14 437
	EBU-943-88 (a)	0	0
GROSS EXPORTS		1 879 780	1 821 715
NET EXPORTS (c)		0	0

ETHANE

Dome Petroleum Limited	GL-51	839 879	871 841
GROSS EXPORTS		839 879	871 841
NET EXPORTS (c)		0	0

Kilograms

ETHYLENE

Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (a)	127 715 403	151 660 454
GROSS EXPORTS		127 715 403	151 660 454
NET EXPORTS (c)		0	0

- a - This licence/order authorizes an export of product for subsequent import.
b - This is an import-export licence/order whereby product exported has been previously imported.
c - Excludes volumes of licences/orders under footnotes.
N/A Not Applicable

Gas

10. Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1987 Actual	1988 Preliminary
PROPANE			
Amoco Canada Petroleum Company Limited	EPR-918-79 (a)	952 356	773 025
	EPR-934-86 (b)	2 286	N/A
	EPR-941-87 (b)	3 285	5 776
Canstates Energy	EPR-939-87 (a)	5 862	0
	EPR-943-88 (a)	N/A	86 459
Dome Petroleum Limited	EPR-917-79 (a)	686 023	982 689
	EPR-930-84 (b)	347 258	263 710
ICG Liquid Gas Ltd.	EPR-944-88 (a)	N/A	18 988
Imperial Oil Limited	EPR-922-80 (a)	0	0
PanCanadian Gas Products Limited	EPR-919-79 (a)	242 054	280 156
Petro-Canada Inc.	EPR-934-86 (b)	3 065	N/A
Petrosar Limited	EPR-940-87 (a)	34 897	17 787
Procor Limited	EPR-935-86 (b)	0	N/A
Superior Propane Inc.	EPR-942-87 (a)	38 141	0
Texaco Canada Inc.	EPR-945-88 (a)	N/A	0
GROSS IMPORTS		2 315 227	2 428 590
NET IMPORTS (c)		0	0
BUTANES			
Amoco Canada Petroleum Company Limited	EBU-133-74 (a)	784 377	654 629
	EBU-933-86 (b)	7 988	N/A
	EBU-941-87 (b)	4 305	8 643
Canstates Energy	EBU-939-87 (a)	0	0
	EBU-942-88 (a)	N/A	0
Dome Petroleum Limited	EBU-132-74 (a)	683 764	826 675
	EBU-929-84 (b)	253 958	215 307
Imperial Oil Limited	EBU-911-80 (a)	0	0
PanCanadian Gas Products Limited	EBU-134-74 (a)	126 620	128 632
Petro-Canada Inc.	EBU-934-86 (b)	0	N/A

Gas

10. (Cont'd) Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1987 Actual	1988 Preliminary
Petrosar Limited	EBU-940-87 (a)	0	0
Procor Limited	EBU-935-86 (b)	0	N/A
Texaco Canada Incorporated	EBU-916-82 (a)	0	14 437
	EBU-943-88 (a)	N/A	0
GROSS IMPORTS		1 861 012	1 848 323
NET IMPORTS (c)		0	0

ETHANE

Dome Petroleum Limited	GL-51	782 805	917 227
	GO-85-86 (d)	119 993	N/A
	GO-44-87 (d)	119 980	N/A
	GO-114-87 (d)	N/A	119 991
	GO-60-88 (d)	N/A	119 241
GROSS IMPORTS		1 022 778	1 156 459

ETHYLENE

		Kilograms	
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (a)	115 751 879	151 660 454
GROSS IMPORTS		115 751 879	151 660 454
NET IMPORTS (c)		0	0

- a - This licence/order authorizes an import of product which has been previously exported.
b - This is an import-export licence/order whereby product imported is subsequently exported.
c - Excludes volumes of licences/orders under footnotes.
d - This order authorizes an import of ethane at Sarnia, Ont. in exchange for natural gas exported at Emerson, Man. by Imperial Oil Limited.
N/A Not Applicable

Gas

11. Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butanes	
	1987 Actual	1988 Preliminary	1987 Actual	1988 Preliminary
Amoco Canada Petroleum Company Ltd. (a)	280 813	424 767	467 408	399 990
Atlantic Speedy Propane Limited	2 500	2 684	N/A	N/A
Burnwell Gas of Canada Ltd.	34 256	40 934	N/A	N/A
Can-Am Liquids Corp. Ltd.	7 054	N/A	1 178	N/A
Canadian Enterprise Gas Products Ltd.	9 423	10 379	27 938	30 884
Canadian Superior Oil Ltd.	6 316	N/A	18 113	N/A
CanPet Marketing Ltd.	7 080	14 078	11 072	11 154
CanStates Energy	19 297	69 558	93 153	129 058
Chevron Canada Resources	19 005	29 233	0	1 588
Commonwealth Petroleum Co.	N/A	25 293	N/A	N/A
Consumers' Co-Operative Refineries Ltd.	4 917	3 038	989	6 636
Dome Petroleum Limited (a)	887 902	1 372 358	615 007	772 540
Dominion Propane Corp.	179	112	0	0
Elbow River Resources Ltd.	0	0	8 778	9 649
Elgin Resources Limited	8 549	6 622	17 792	122
Enron Liquids Marketing Canada Ltd.	26 250	14 364	21 137	12 488
Ferrell Petroleum Inc.	N/A	31 746	N/A	N/A
Gas Supply (Minneapolis) Ltd.	7 938	N/A	N/A	N/A
Gibson Gas Liquids Ltd.	6 023	8 546	21 506	15 106
Gulf Canada Resources Ltd.	3 168	65 151	28 734	58 805
Gulliver Energy Ltd.	0	N/A	0	N/A
Home Oil Company Limited	21 676	20 086	31 779	20 321
Husky Oil Operations Ltd.	0	0	0	0
ICG Liquid Gas Ltd.	58 860	46 272	0	0
Imperial Oil Limited	242 303	213 144	402 753	369 845
Irving Oil Limited	437	5 516	0	20 039
Kildair Service Ltd.	0	387	0	0
Koch Hydrocarbon Canada	0	3 938	40 850	28 599
L.H.H. Enterprises Ltd.	0	580	0	0
L.P.G. Resources Canada Inc.	0	120	0	22 936
M-P. Oils Ltd	2 758	31 780	1 955	1 609
Mobil Oil Canada	94 961	77 106	115 867	115 508
Newfoundland Processing Ltd.	0	0	0	0
NGL Supply (1985) Ltd.	21 838	19 444	5 264	0
Olco Petroleum Group Inc.	0	0	0	0
PanCanadian Gas Products Ltd. (a)	115 564	110 790	124 701	133 523
Petro-Canada Hydrocarbons Inc.	363 569	604 134	292 510	319 757
Petro-Canada Inc.	0	N/A	0	N/A
Petrogas Marketing Ltd.	2 007	7 601	6 745	7 850
Petromont Inc.	N/A	8 381	3 803	13 448
Petrosol International Inc.	0	N/A	0	N/A
Petrowest Petroleum Ltd.	35 723	118 188	10 582	14 920
Raymond Gas Liquids Marketing Ltd.	3 740	N/A	6 252	N/A
Rivecal Energy Ltd.	0	0	0	0
Shell Canada Products Ltd.	163 897	167 289	214 634	226 940
Energy Transportation Inc.	23 760	31 640	73 170	18 511
Stittco Energy Ltd.	2 857	5 527	255	2 050
Suncor Inc.	4 055	0	54 689	39 708
Superior Propane Inc.	59	0	N/A	N/A
Texaco Canada Inc.	69 591	58 541	62 322	38 188

Gas

11. (Cont'd) Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butanes	
	1987 Actual	1988 Preliminary	1987 Actual	1988 Preliminary
Texaco Producing Inc.	N/A	15 396	N/A	0
Unocal Canada Ltd.	8 709	5 808	3 861	9 608
Ultramar Canada Inc.	N/A	0	N/A	0
Westcan Energy Ltd.	20 022	42 803	12 695	7 446
TOTAL	2 587 056	3 713 334	2 797 492	2 858 826

a - Includes net export volumes under licences.

N/A Not Applicable

Electricity

1. Certificates Issued During 1988 Approving International Power Lines

No Certificates were issued in 1988

Electricity

2. Orders Issued During 1988 Relating to International Power Lines

Applicant	Order No.	Issued	Facilities
Hydro-Québec	XE-1-88	88-08-18	One international power line extending from the distribution transformer designated as M2KIC, to a point on the international boundary line located 25 metres north-east of marker no. 353B in the municipality of Saint-Théophile. This single-circuit single-phase line, designated GEE.F.W.M., operates at a nominal voltage of 120/240 volts .
	XE-2-88	88-08-18	One international power line extending from the distribution transformer designated as M2KIC, to a point on the international boundary line located 25 metres north-east of marker no. 353B in the municipality of Saint-Théophile. This single-circuit single-phase line, designated GEE.F.H.F., operates at a nominal voltage of 120/240 volts .

Electricity

3. Licences Issued During 1988 Relating to the Export of Electricity

Applicant	Licence No.	Class	Megawatts	Annual Gigawatt Hours	Term		Hearing Commenced	Issued
					From	To		
Hydro-Québec	EL-175	Firm	50	438	88-03-01	99-10-31	88-01-19	88-01-19
	EL-176	Firm	-	9 000	90-09-01	04-08-31	87-12-01	88-01-22
Maine and New Brunswick Electrical Power Company, Limited	EL-177	Firm	37	200	88-07-01	08-06-30	88-03-29	88-05-05

Electricity

4. Orders Issued During 1988 Relating to the Export of Electricity

4(a) Orders issued pursuant to Section 7 of the Part VI Regulations.

Applicant	Order No.	Class	Kilowatts	Annual Megawatt Hours	Term		Issued
					From	To	
British Columbia Hydro and Power Authority	ELO-251	Firm	300	900	88-12-01	91-11-30	88-11-21
Canadian Niagara Power Company Limited	ELO-253	Firm	45 000	328 500	88-11-21	89-09-30	88-11-21
The Canadian Transit Company	ELO-239	Firm	100	25	88-08-01	91-07-31	88-05-26
Cornwall Electric	ELO-229	Interruptible	--	300 000	88-05-01	89-10-31	88-03-02
The Detroit and Windsor Subway Company	ELO-252	Firm	300	2 000	88-12-01	91-11-30	88-11-21
Hydro-Québec	ELO-223	Interruptible	--	946 000	88-03-02	91-02-28	88-03-02
	ELO-224	Firm	60 000	400 000	88-03-02	91-02-28	88-03-02
	ELO-230	Firm	20	35	88-04-15	91-04-14	88-03-15
	ELO-231	Firm	75	250	88-04-15	91-04-14	88-03-15
	ELO-232	Firm	20	100	88-04-15	91-04-14	88-03-15
	ELO-233	Firm	35	65	88-04-15	91-04-14	88-03-15
	ELO-234	Firm	65	200	88-04-15	91-04-14	88-03-15
	ELO-235	Firm	10	15	88-04-15	91-04-14	88-03-15
	ELO-236	Firm	2	2	88-04-15	91-04-14	88-03-15
	ELO-237	Firm	65	250	88-04-15	91-04-14	88-03-15
	ELO-254	Firm	34 000	7 900	88-12-16	90-03-14	88-12-08
	ELO-255	Firm	54 000	400 000	89-01-01	91-10-31	88-12-08
The Manitoba Hydro- Electric Board	ELO-241	Firm	900	7 884	88-10-01	91-09-30	88-06-07
New Brunswick Power	ELO-228	Firm	50 000	250 000	88-04-03	91-04-02	88-02-17
	ELO-240	Firm	60 000	200 380	88-06-01	88-10-31	88-05-31
	ELO-242	Firm	60 000	132 480	88-07-01	88-09-30	88-06-27
	ELO-243	Firm	10 000	18 360	88-08-01	88-10-31	88-07-22
	ELO-244	Firm	250	350	88-10-21	91-10-20	88-09-07
	ELO-245	Firm	40	75	88-10-21	91-10-20	88-09-07
	ELO-246	Firm	50	20	88-10-21	91-10-20	88-09-07
	ELO-247	Firm	60 000	400 000	88-11-01	89-10-31	88-10-31
	ELO-248	Firm	60 000	43 200	88-11-01	88-11-30	88-10-31
	ELO-249	Firm	60 000	43 200	88-11-01	88-11-30	88-10-31
	ELO-250	Firm	60 000	400 000	88-11-01	89-10-31	88-10-31
Ontario Hydro	ELO-238	Firm	100	200	88-05-15	91-05-14	88-04-28

Electricity

4. Orders Issued During 1988 Relating to the Export of Electricity (Cont'd)

4(b) Amending orders issued relating to export licences or orders

Applicant	Order No.	Issued	Comments
British Columbia Hydro and Power Authority	AO-1-EL-162	88-05-19	Amendment waiving the restriction of the export of energy generated at the Burrard plant.
	AO-1-EL-163	88-05-19	Amendment waiving the restriction of the export of energy generated at the Burrard plant.
	AO-2-EL-162	88-09-12	Amendment extending the term of the licence by six months.
Hydro-Québec	AO-2-EL-167	88-01-22	Amendments defining more clearly the quantities of power and energy to be exported.
	AO-1-EL-172	88-03-02	Amendments defining more clearly the quantities of power and energy to be exported.
	AO-1-EL-237	88-08-18	Amendment authorizing export over the new international power lines authorized by Orders XE-1-88 and XE-2-88.
	AO-1-EL-175	88-10-27	Amendment authorizing export over any international power line authorized by the Board.

Electricity

5. Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
NEW BRUNSWICK								
Fraser Inc.	ELO-214	400 000	--	379 650	--	--	19 477 422	--
Maine and New Brunswick Electrical Power Company, Limited	EL-22*	250 000	--	47 765	--	--	740 294	--
	EL-23*	--	25 000	--	--	--	--	--
	EL-177	200 000	--	36 202	--	--	1 109 011	--
New Brunswick Power	EL-137	876 000	--	841 711	--	- 7 430	45 216 127	--
	EL-138	876 000	--	841 711	--	- 7 430	49 675 018	--
	EL-139	92 000	--	52 581	--	- 2 936	3 267 906	--
	EL-140	--	6 482 400(b)	--	2 339 974	- 976	--	73 470 048
	EL-141	1 226 400	--	--	--	137 570	--	--
	EL-142	140 000	--	--	--	--	--	--
	EL-143	--	300 000	--	174 832	24 009	--	6 024 296
	EL-144	250 000	--	--	--	--	--	--
	EL-145	--	179 000	--	15 455	- 1 875	--	523 775
	EL-150	1 138 000	--	210 428	--	- 1 857	12 418 749	--
	ELO-212*	250 000	--	15 878	--	--	2 002 663	--
	ELO-226*	400 000	--	23 400	--	--	2 679 055	--
	ELO-228	250 000	--	--	--	--	--	--
	ELO-240*	200 380	--	31 020	--	--	2 138 104	--
	ELO-242*	132 480	--	20 940	--	--	1 103 051	--
	ELO-243*	18 360	--	--	--	--	61 140	--
from	ELO-244	--	--	--	--	--	--	--
to	ELO-246	445	--	257	--	--	23 667	--
	ELO-247	400 000	--	7 980	--	--	1 260 501	--
	ELO-248*	43 200	--	4 080	--	--	631 982	--
	ELO-249*	43 200	--	4 080	--	--	631 982	--
	ELO-250	400 000	--	4 111	--	--	765 272	--
TOTAL				2 521 794	2 530 261	139 075	143 201 944	80 018 119

Electricity

5. Exports (Megawatt Hours) (Cont'd)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
QUEBEC								
Cedars Rapids Transmission Company, Limited	ELO-207	20 000	--	--	--	--	--	--
Hydro-Québec	EL-96	3 000 000	--	3 000 000	--	--	79 833 432	--
	EL-151	--	11 000 000	--	724 771	--	--	18 629 147
	EL-152	--	23 564 000(c)	--	1 339 247	--	--	38 562 303
	EL-153	--	23 564 000(c)	--	799 914	- 1 957	--	19 786 028
	EL-154	11 220 000(d)	--	282 241	--	--	12 074 333	--
	EL-155*	13 140 000(d)	--	89 823	--	--	3 235 404	--
	EL-156	25 000	--	--	--	--	--	--
	EL-165	--	3 000 000	--	--	--	--	--
	EL-166	--	4 000 000	--	2 959 945	--	--	70 606 429
	EL-167	--	6 920 000(e)	--	971 322	457	--	40 800 418
	EL-168	1 314 000	--	1 022 000	--	--	44 887 127	--
	EL-169	--	1 752 000(f)	--	135 117	- 88	--	2 547 203
	EL-171	222 100	--	82 672	--	--	3 704 843	--
	EL-172	657 000(g)	--	28 508	--	--	1 209 606	--
	EL-175	438 000	--	348 835	--	--	7 755 619	--
	ELO-213*	400 000	--	65 778	--	--	1 687 534	--
	ELO-223	--	946 000(h)	--	13 140	--	--	311 163
	ELO-224	400 000	--	--	--	--	--	--
from ELO-220 to ELO-222 and from ELO-230 to ELO-237		1 957	--	912	--	--	51 749	--
TOTAL				4 920 769	6 943 456	- 1 588	154 439 647	191 242 691

Electricity

5. Exports (Megawatt Hours) (Cont'd)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
ONTARIO								
Boise Cascade Canada Ltd.	ELO-211	--	70 000	--	80	--	--	2 778
Canadian Niagara Power Company Limited	EL-161	--	500 000	--	396 184	14 079	--	10 984 034
	ELO-253	--	328 500	--	--	--	--	--
The Canadian Transit Company	ELO-239	25	--	24	--	--	--	--
Cornwall Electric	EL-158	--	250 000	--	--	6 442	--	--
	EL-159	--	150 000	--	24 207	--	--	637 528
	EL-160	--	150 000	--	--	19 286	--	--
	ELO- 188	--	250 000	--	26 481	--	--	669 381
	ELO- 229	--	300 000	--	196 194	--	--	5 301 773
The Detroit and Windsor Subway Company	ELO-252	2 000	--	1 159	--	--	--	--
Ontario Hydro	EL-32	15 000	--	992	--	--	1 984	--
	EL-134	--	10 000 000	--	--	1 743 994	--	--
	EL-135	10 500 000	--	381 739	--	--	13 487 202	--
	EL-136	--	25 000 000(i)	--	4 595 736	31 921	--	139 537 654
	ELO-238	200	--	21	--	--	1 466	--
TOTAL				383 935	5 238 882	1 815 722	13 490 652	157 133 148
MANITOBA								
The Manitoba Hydro- Electric Board	EL-97	--	1 800 000	--	--	--	--	--
	EL-98	876 000	--	140 161	--	--	6 281 484	--
	EL-99	262 800	--	200 671	--	--	4 817 850	--
	EL-100	800 000	--	--	--	--	--	--
	EL-101	2 500 000	--	--	--	--	--	--
	EL-102	3 270 000	--	--	--	--	--	--
	EL-103	--	12 000 000(j)	--	380 457	- 94 940	--	8 971 803
	ELO-210							
and	ELO-241	7 899	--	2 173	--	--	93 878	--
TOTAL				343 005	380 457	- 94 940	11 193 212	8 971 803
SASKATCHEWAN								
Saskatchewan Power Corporation	EL-118	438 000(k)	--	--	--	30 200	--	--
	EL-119	--	876 000(l)	--	1 475	25 322	--	26 712
	EL-120	876 000(l)	--	--	--	--	--	--
TOTAL				--	1 475	55 522	--	26 712

Electricity

5. Exports (Megawatt Hours) (Cont'd)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
BRITISH COLUMBIA								
British Columbia	EL-162	6 000 000	--	146 400	--	--	4 135 711	--
Hydro and Power	EL-163	--	15 000 000(m)	--	5 776 342	1 314 721	--	105 958 678
Authority	EL-164	--	3 000 000	--	--	732 988	--	--
	ELO-225	--	--	--	--	--	--	--
and	ELO-251	15 900	--	14 665	--	--	668 029	--
	n	--	--	--	--	328 392	--	--
Cominco Ltd.	ELO-216	50 000	--	--	--	--	--	--
	ELO-217	250 000	--	--	--	--	--	--
	ELO-218	--	1 000 000	--	526 840	10 661	--	10 055 416
	ELO-219	--	1 000 000	--	--	--	--	--
West Kootenay Power and Light Company, Limited	ELO-227	50	--	42	--	--	2 336	--
TOTAL				161 107	6 303 182	2 386 762	4 806 076	116 014 094
TOTAL CANADA(o)				8 330 610	21 397 713	4 300 553	327 131 531	553 406 567

a - Exchange is no value energy. It includes inadvertent and circulating flow, equichange, storage adjustment transfer and wheeling or carrier transfer.

b - Total exports should not exceed 6 482.4 GW.h less any amounts exported pursuant to another licence or order under which the energy is transmitted over the line authorized by the Certificate EC-III-8.

c - Total exports should not exceed 23 564 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by the Certificates EC-III-15 and EC-10.

d - Total exports under EL-154 and EL-155 should not exceed 13 140 GW.h when combined together.

e - Total exports should not exceed 6 920 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by certificate EC-III-21.

f - Total exports should not exceed 1 752 GW.h less any amounts exported under Licence EL-168.

g - Total exports should not exceed 657 GW.h less any amounts exported under Licence EL-171 and Orders ELO-223 and ELO-224.

h - Total exports should not exceed 946 GW.h less any amounts exported under Licences EL-171, EL-172, EL-155 and Order ELO-224.

i - Total exports should not exceed 25 000 GW.h less any amounts exported under Licence EL-135.

j - Total exports should not exceed 12 000 GW.h less any amounts exported under Licences EL-97, EL-98, EL-99, EL-100, EL-101 and EL-102.

k - No value energy, energy to be returned.

l - Total exports under Licences EL-119 and EL-120 should not exceed 876 GW.h. when combined together.

m - Total exports should not exceed 15 000 GW.h less any amounts exported under Licence EL-162.

n - Energy exported in accordance with the Skagit River Valley Treaty which is not under the Board's jurisdiction.

o - Excludes \$8 008 349 revenue for wheeling, transmission, unit rental and storage transfer charges.

* Expired during 1988

Financial Regulatory

1. 1988 Financial Information (a) - Group 1 Pipeline Companies

Oil (b)	Cochin		Interprovincial		IPL(NW)		Trans Mountain		Trans-Northern		Total
	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	
Revenue Requirement											
Return	10.4	37.0	70.8	26.3	43.8	57.5	11.1	19.3	4.8	20.1	140.9
Depreciation	5.2	18.5	35.9	13.4	14.8	19.4	3.9	6.8	2.0	8.4	61.8
Operating & Mtce.	10.8	38.4	114.2	42.5	5.3	7.0	24.1	42.0	13.2	55.2	167.6
Taxes	1.7	6.0	47.9	17.8	12.3	16.1	18.3	31.9	3.9	16.3	84.1
Total	28.1	100.0	268.8	100.0	76.2	100.0	57.4	100.0	23.9	100.0	454.4

Capitalization of Rate Base (c)

Debt	N/A (d)	N/A	378.3	56.1	229.6	72.0	38.5	45.6	18.0	38.5	664.4
Preferred	N/A (d)	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Taxes	N/A (d)	N/A	65.0	9.6	0.0	0.0	7.5	8.9	9.7	20.8	82.2
Common Equity	N/A (d)	N/A	231.4	34.3	89.1	28.0	38.5	45.6	19.0	40.7	378.0
Total	51.6	100.0	674.7 (e)	100.0	318.7	100.0	84.5	100.0	46.7	100.0	1 178.3

Return on Common Equity

Approved	N/A (d)(f)	N/A	30.7	13.25	14.3	16.00	5.4	14.00	2.6	13.75	
Actual	10.4 (g)	19.44	31.1	13.45	14.3	16.00	6.9	17.87	2.6	13.58	

Gas (b)	Alberta Natural Gas		Foothills		TQM		TransCanada		Westcoast		Total
	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	
Revenue Requirement											
Return	2.1	8.0	69.9	39.1	51.1	70.6	325.3	35.6	90.0	32.7	538.4
Depreciation	2.2	8.4	35.9	20.1	13.3	18.4	95.1	10.4	30.0	10.9	176.5
Operating & Mtce.	18.6	71.3	42.6	23.8	6.1	8.4	320.3	35.0	84.3	30.6	471.9
Taxes	3.2	12.3	30.5	17.0	1.9	2.6	173.3	19.0	71.2	25.8	280.1
Total	26.1	100.0	178.9	100.0	72.4	100.0	914.0	100.0	275.5	100.0	1 466.9

Capitalization of Rate Base (c)

Debt	10.2	65.0	421.6	60.4	287.0	75.0	1 399.5	54.5	449.4	54.9	2 567.7
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	343.9	13.4	33.2	4.1	377.1
Deferred Taxes	0.0	0.0	118.1	16.9	0.0	0.0	75.9	3.0	75.5	9.2	269.5
Common Equity	5.5	35.0	157.8	22.6	95.7	25.0	747.2	29.1	259.8	31.8	1 266.0
Total	15.7	100.0	697.5	100.0	382.7	100.0	2 566.5 (e)	100.0	817.9 (e)	100.0	4 480.3

Return on Common Equity

Approved	N/A (f)	N/A	22.5	14.25	13.2	13.75	109.5	14.65 (h)	35.7	13.75	
Actual	1.1	19.56	22.5	14.25	56.0	14.63	376.0	14.65	117.4	14.35	

a - Based on preliminary estimates.

b - Full names of companies are listed in Companies Under National Energy Board Jurisdiction.

c - Adjusted to show deferred taxes as a source of funds.

d - Not applicable as company is financed on a joint venture basis.

e - Excludes construction work in progress.

f - Not applicable as company is on a complaint basis.

g - Before interest and taxes.

h - Applied-for rate, company on interim tolls.

Senior Staff of the Board ¹

Office of the Executive Director

Robin D. Glass, Executive Director

Finance and Administration Branch

Wayne Ganim, Director

Personnel Branch

Jim Thompson, Director

Planning and Review Branch

Claire M.M. Scott, Director

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Office of the Secretary

Louise Meagher, Secretary

¹ As of 31 December 1988

² Retired in February 1989

³ Branch names changed effective 1 February 1989

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1989 ANNUAL REPORT

National Energy Board



NATIONAL ENERGY BOARD
30 Years
1959 - 1989

National Energy Board

31 March 1990

The Honourable Jake Epp, P.C., M.P.
Minister of Energy, Mines and Resources
Ottawa, Ontario

Dear Mr. Epp:

I am pleased to submit the Annual Report of the National Energy Board for the year ending 31 December 1989 in accordance with the provisions of section 133 of the National Energy Board Act, Revised Statutes of Canada, 1985, chapter N-7.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'R. Priddle', with a stylized, cursive script.

R. Priddle,
Chairman

National Energy Board Profile

The National Energy Board is an independent federal regulatory tribunal that was created by an Act of Parliament on 2 November 1959. During the past 30 years, it has played an important role in the development of Canada's energy sector.

The Board's regulatory powers under the *National Energy Board Act* include the licensing of oil, natural gas, and electricity exports, the certification of interprovincial and international pipelines and designated interprovincial and international power lines, and the setting of tolls and tariffs for oil and gas pipelines under federal jurisdiction.

The *Act* also requires that the Board keep under review the Canadian supply of all major energy commodities, with emphasis on electricity, oil, natural gas, and the by-products derived from oil and natural gas, as well as the demand for Canadian energy in Canada and in export markets.

The Board also has specific responsibilities under the *Northern Pipeline Act* and the *Energy Administration Act*. In addition, Board inspectors have been appointed safety officers by the Minister of Labour to administer Part II of the *Canada Labour Code*.

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Chairman's Letter

In 1989, the National Energy Board completed 30 years' service in the public interest of Canada relating to energy regulation and the provision of energy advice.

The close of our third decade and the start of our fourth was marked by exceptional change in the Board's membership. After distinguished service as Members and Associate Vice-Chairmen, Dr. Livia Thur resigned in April 1989 with 12 years' service and Digby Hunt retired in August after completing his seven-year appointment. Then in November, Jack Jenkins, one of our Board's first employees, retired after a total of 30 years' service with the Board, 11 of them as a Member.

Newly appointed to the Board in 1989 were Anita Côté-Verhaaf of Montreal, Quebec; Martha Musgrove of Ottawa, Ontario; Céline Bélanger of Calgary, Alberta; and Roy Illing of Victoria, British Columbia; the latter two appointments became effective January 1, 1990. As well, Ken Vollman of Luseland, Saskatchewan was reappointed as a Temporary Member for a three-year term.

The National Energy Board now has nine permanent Members and two temporary ones, one part time, the other full time. There are no longer Associate Vice-Chairmen: the three positions which have existed since 1970 are proposed to be eliminated under pending legislation.

The Board's staff worked hard and effectively, again making an invaluable contribution to the conduct of the business of the Board. At year-end, the staff numbered just over 300.

Not all of the Board's decisions, whether approvals or denials, went unchallenged. Various parties took issue with Board findings and sought redress in forms ranging from applications to the Board for review, to appeals to the Federal Court, and even to submissions to Cabinet.

Such was the case with the decision, announced in October, to license the export of some ten exajoules of natural gas from the Mackenzie Delta area. Approval is an essential first step towards the commercial development of these resources. The Board is very conscious of the social and environmental concerns associated with that development, and is committed to doing its part towards avoiding and mitigating any adverse consequences that might arise from construction of facilities under its jurisdiction. Such consequences can, in the Board's view, best be identified and addressed in concrete terms as and when development proceeds to the next stage, that is, an application for pipeline facilities.

Nevertheless, in response to a letter from the Minister dated 8 February 1990, which asked the Board how it had complied, or would comply, with the requirements of the Environmental Assessment and Review Process Guidelines Order, the Board advised Mr. Epp that it would institute a formal environmental screening process for natural gas exports, to determine

whether, and to what extent, there are any potentially adverse environmental effects upstream and downstream of the Board's jurisdiction. This screening process was begun in early 1990 and applied to those licences approved by the Board in late 1989 (including those for Mackenzie Delta gas exports), that had not yet been approved by the Governor in Council, as well as to applications to be heard in the spring of 1990.

Parties also disputed the Board's decision, announced in November, to deny four out of seven applications for licences to export natural gas commencing November 1, 1990. The Board took these decisions, as it must, on the basis of the evidence before it and in pursuit of what it sees as the Canadian public interest. At the same time, the Board was aware of and concerned by, disagreements with some of the analytical techniques it uses in assessing gas exports applications. It therefore commenced a public hearing to review aspects of its Market-Based Gas Export Procedures. A report is expected to be issued in March 1990.

The attention attracted by high-profile decisions should not obscure the Board's record of dealing with a large volume of business in a timely and efficient manner. This record, which is the subject of much of this report, was maintained throughout the year.

Thus, the Board rendered several major toll decisions after conducting extensive public hearings; continued to monitor closely the tolls charged by the ten major pipelines under its jurisdiction, which generated some \$2 billion in revenues during 1989; approved expansions of pipeline facilities having an aggregate value of \$1 billion; dealt with an electricity export issue involving environmental concerns relating to generating-station emissions; and licensed the export of some 17 exajoules of natural gas, the largest aggregate amount ever approved by the Board in one year.

In the gas export licence proceedings, no Canadian buyers complained that they were unable to purchase gas on terms and conditions, including price, similar to those of the proposed export. The Board takes this as one indication that the licensed quantities are surplus to reasonably foreseeable requirements of gas for use in Canada.

This was the first year of operation of the Canada-United States Free Trade Agreement. In exercising its powers and performing its duties, the Board sought to give effect to the agreement, as by law it must.

The Free Trade Agreement has not had a perceptible effect on energy flows across the border. This accords with the Board's expectations. Prior to 1989, steps had already been taken in each country to give a market orientation to energy trade regulation. There were, therefore, no major barriers to be removed which would have had the effect of stimulating energy trade. The importance of the agreement for our energy trade is not in relation to its short-term effects, but to its impacts in the long run. It establishes a reasonably clear set of "rules of the game" and an institutional framework

which should give investors, producers and consumers in both countries enhanced confidence in expanding energy trade.

The Board's publications in 1989 included a second issue of the "Natural Gas Market Assessment", dealing this time with the period 1989-91. This assessment, which is part of the Board's overall monitoring of the Canadian gas situation, concluded that, although some constraints to the working of markets still exist, progress continued to be made towards increased competition. The report also expected that natural gas prices would be stable through 1991, with the exception of price fluctuations for certain categories of short-term transactions. Canadian consumers' natural gas needs were fully satisfied in 1989.

Just four years after the 1985 "Inter-governmental Agreement on Natural Gas Prices and Markets", the Canadian interprovincial gas market has been transformed from one almost wholly subject to government price regulation and dominated by one large seller, to perhaps the freest and most open gas market in the world. The Board has played a major role in opening up this market. In 1989 it applied similar open-access principles to the two largest-volume gas export pipelines, Alberta Natural Gas and Foothills.

Gas exports grew by over five per cent in 1989. Further export growth is constrained by the fact that pipelines are now for the most part operating at capacity and any additional large increase in sales must await capacity expansion, which is presently underway. At year-end, the Board had before it one of the largest-ever applications for pipeline expansion. This was by TransCanada PipeLines for 1991-92 facilities needed to meet growth of both domestic and export gas requirements.

This and other pipeline projects involve related facilities subject to United States' regulation. During the year, the Board enhanced its contacts with its American counterpart agency, the Federal Energy Regulatory Commission. The purpose of these regular contacts, at both the staff and Member levels, is to see to it that each body has a thorough understanding of the other's regulatory requirements and a timetable for dealing with cross-border energy issues.

The Board does not promote energy development. Its job is to receive applications and deal with them in accordance with its legislation in a manner which safeguards the Canadian public interest. However, Canada is a large energy consumer. Given a favourable economic climate, it is also a land rich in energy development possibilities. And it is located next to the world's largest energy market. When these circumstances combine to stimulate development, the Board sees it as its duty to ensure that projects under its jurisdiction receive prompt but thorough regulatory examination. This process of examination must of course ensure that all relevant environmental issues are properly addressed. To the extent that this regulatory activity has a favourable impact on economic efficiency, then it can contribute to income generation through the prudent development and marketing of energy resources, leading to employment opportunities across the country and ensuring that energy markets continue to be adequately supplied.

The oil market in 1989 functioned very satisfactorily to provide producers with adequate outlets and consumers with sufficient supplies. During the last six weeks of 1989, eastern Canada faced both record-breaking cold and a strike which affected water-borne oil movements. Nevertheless, supplies were maintained over the period, albeit in some instances at increased costs.

The net quantity of electricity exported in 1989 fell by 64 percent compared with the previous year. This is a consequence of rapid growth in domestic requirements and of generation constraints facing hydro-based Canadian utilities caused by low precipitation in successive years. Electricity exports are unlikely to rise until such time as new contracts for firm, long-term power are put in place and the related regulatory approvals obtained. The Board will be dealing with applications for exports of this sort in 1990.

In 1989, the Board was positioning itself to deal with a number of accentuated concerns and upcoming issues.

Thus, in September, it issued a draft guideline requiring applicants for new facilities and certain energy exports to give early public notification of what they propose to do. The purpose of this guideline will be to promote early consultation between the public and proponents of energy projects on matters of public concern, particularly environmental matters. These concerns will be taken into account by applicants and the Board, and mitigative measures put in place as necessary.

The Board is anxious to carefully examine regulatory processes relating to possible northern oil and gas pipeline applications, with a view to ascertaining the most efficient possible approaches to regulation which will, at the same time, best identify and safeguard environmental and socio-economic concerns.

Finally, in response to a request by the Minister of Energy, Mines and Resources, the Board has initiated studies and consultations identifying measures that could enhance electricity trade in Canada, encourage greater cooperation between Canada's electrical utilities, and enable buyers and sellers of electricity to have commercial access to available transmission capacity through intervening provinces for wheeling purposes.

The Board enters the 1990s in good heart, with a renewed membership, a streamlined structure and a dedicated staff. We are committed to excellence in energy regulation and advice. We are an expert Board, ready to listen to representations, analyse evidence and take reasoned decisions in the Canadian public interest.

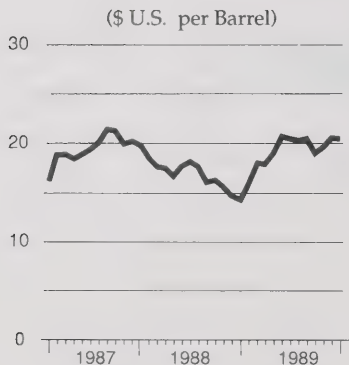
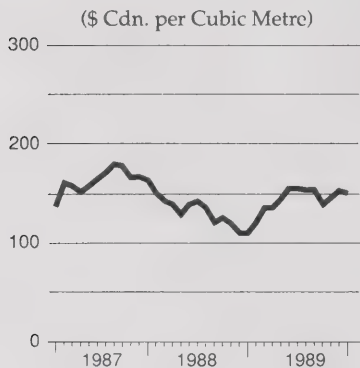


R. Priddle

Energy Developments

Exports of oil and electricity decreased during the year, while natural gas exports increased.

Figure 1
Average Price of West Texas
Intermediate Crude Oil in Chicago



International Oil Prices

In 1989, the West Texas Intermediate (WTI) crude price at Chicago, Illinois, and the f.o.b. price of North Sea Brent crude oil rose by about 20 percent over the 1988 level to average \$US 19.55 and \$US 18.20 per barrel, respectively. World crude oil prices rose rapidly in the first five months of the year - WTI rose from \$US 14.25 in December 1988 to \$US 21.25 in May 1989. Prices fell through the summer months, began to recover in August and, in December 1989, WTI averaged approximately \$US 20.40 per barrel.

Strengthening world oil demand, coupled with reduced production levels in the North Sea and in the United States, effectively raised the demand for crude oil from the member countries of the Organization of Petroleum Exporting Countries (OPEC). World oil demand rose by about one million barrels per day in 1989 over 1988 levels - the less-developed countries accounted for nearly 60 percent of the increase. A number of accidents in the United Kingdom's North Sea lowered production by about 350 thousand barrels per day below potential through most of 1989, while American output declined for a fourth consecutive year.

Price stability was maintained in the face of increased demand for oil and reduced non-OPEC supply, because OPEC raised its output. OPEC began 1989 with quotas totalling 18.5 million barrels per day. In the first half of the year, demand was strong and OPEC production averaged about 20.5 million barrels per day. In June, OPEC quotas for the second half of 1989 were raised to 19.5 million barrels per day; however, Kuwait and the United Arab Emirates (UAE) refused to comply and, in the third quarter, they exceeded their combined quotas by about 1.5 million barrels per day. In November at OPEC meetings, the

quotas for the first half of 1990 were again raised - this time to 22 million barrels per day. In the fourth quarter, OPEC production reportedly averaged 23.7 million barrels per day.

Natural Gas Prices

Natural gas prices that are most relevant to Canada's international trade are those applicable in the United States. Although not representative of specific competitive circumstances, the following comments outline the overall North American gas price situation in 1988 and 1989.

Excepting seasonal fluctuations, the American wellhead prices of natural gas remained relatively stable throughout 1988 and 1989. In 1989, wellhead prices averaged \$US 1.70 per million cubic feet (Mcf) for the year compared with \$US 1.67 per Mcf for 1988.

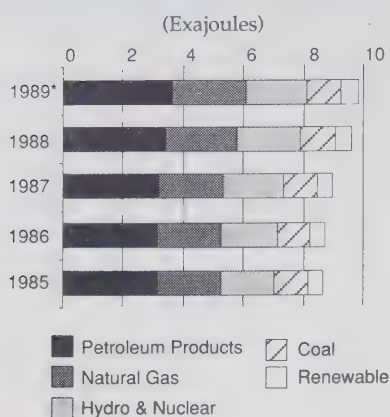
Prices fluctuated to a greater extent in market areas where Canadian exports compete with American supplies. As reported by the U.S. Department of Energy, city gate prices in California were up 6.5 percent in 1989 over 1988, to \$US 2.77 per Mcf; in the Pacific northwest, they were down by approximately 5.0 percent to \$US 2.37 per Mcf; in the central region, the city gate prices on average were down by 0.5 percent to \$US 3.15 per Mcf; and in the northeast they were up by approximately 5.8 percent to \$US 3.20 per Mcf.

Energy Production, Consumption and Trade

The year 1989, compared with 1988, was marked by a fall in domestic demand as well as a decline in export volumes. These two factors helped push Canadian energy production downward.

After growing 5.5 percent in 1988, primary energy demand increased by nearly 1.9 percent in 1989. There was a drop in the consumption of coal and electricity from hydro and nuclear sources and a rise in that of natural gas and oil products. A

Figure 2
Canadian Energy Consumption



*Estimate

Reference: Energy Overview Appendix 1

decrease in economic growth, and a rise in average temperatures in the east resulted in the smaller increase in primary demand in 1989.

Total oil exports fell in 1989 while imports grew. As a result, net oil export volumes decreased by about 40 percent. However, petroleum export prices rose by over ten percent while oil import prices remained unchanged; consequently, net petroleum export revenues fell by less than 25 percent in 1989.

After growing strongly in 1987 and 1988, natural gas exports grew by over five percent - from 1355 petajoules in 1988 to 1 429 petajoules in 1989. The average export price fell slightly as the appreciation of the Canadian dollar outweighed the effect of higher prices in the United States. Therefore, gas export revenues were virtually unchanged between 1988 and 1989. Over the same period, natural gas imports nearly doubled to 45 petajoules.

Table 1
Canadian Trade in Petroleum, Gas and Electricity
(Petajoules and Billions of Dollars)

	1987		1988		1989 (e)	
	PJ	\$ Billions	PJ	\$ Billions	PJ	\$ Billions
Exports						
Petroleum (a)	1 877	7.0	2 304	6.5	2 128	6.9
Natural Gas	1 057	2.6	1 355	3.0	1 429	3.0
Electricity (b)	163	1.2	107	0.9	66	0.7
Total Exports	3 097	10.8	3 766	10.4	3 623	10.6
Imports						
Petroleum (a)	1 126	4.5	1 269	4.2	1 517	5.1
Natural Gas	4	(c)	24	0.1	45	0.1
Electricity (b)	2	(c)	10	0.1	31	0.3
Total Imports	1 132	4.5	1 303	4.3	1 593	5.5
Net Export						
Total	1 965	6.3	2 463	6.1	2 030	5.1

The numbers in this table have been rounded

e - Estimate

a - Includes all petroleum products and natural gas liquids. Excludes exchanges between Canada and the United States.

b - Electricity is converted at 3.6 petajoules per terawatt hour on the basis of the energy content of the electricity output. Excludes exchanges between Canada and the United States.

c - Less than \$50 million.

In 1989, as in 1988, electricity exports dropped. A general increase in domestic loads coupled with low water levels contributed to a 38-percent decline in total export sale quantities. In respect of revenues, the decline is less important, 25 percent, resulting from a 21-percent increase in average price. The net quantity of electricity exported declined by 64 percent, largely because of increased purchases from American utilities.

Crude Oil and Petroleum Products

Production of Canadian Crude Oil

Crude oil production in Canada (including conventional light and heavy crude oil, bitumen, pentanes plus, and synthetic crude oil) averaged approximately 265 000 cubic metres per day in 1989, about three percent less than the 1988 level.

The supply of conventional light crude oil decreased by about six percent in 1989, to 147 100 cubic metres per day.

In 1989, synthetic crude oil production from the Syncrude and Suncor mining plants averaged about 32 500 cubic metres per day, three percent higher than in 1988. This was due, in part, to the completion of the capacity addition program at the Syncrude plant in late 1988. Synthetic crude oil production from the Newgrade upgrader in Saskatchewan averaged about 200 cubic metres per day because of operational problems.

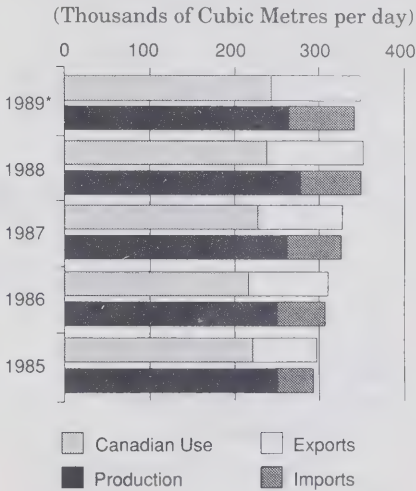
Total pentanes plus production was approximately 18 400 cubic metres per day in 1989, of which about 12 000 cubic metres per day was used as diluent for heavy crude oil and bitumen. This represents virtually no change from the 1988 levels of pentanes plus production and diluent use.

The supply of blended heavy crude (including conventional heavy crude oil, bitumen and pentanes plus used as diluent) averaged a record high level of about 79 000 cubic metres per day in 1989, an increase of one percent over the 1988 level. The supply of blended heavy crude was expected to be further increased; however, anticipated developments and expansions of several bitumen projects were deferred as a result of crude oil price uncertainty.

Oil Refining

In 1989, refinery throughput in Canada increased by three percent, reflecting higher domestic demand for the main petroleum products. Motor gasoline and middle distillates increased two and five percent, respectively, while heavy fuel

Figure 3
Canadian Crude Oil and Equivalent Supply and Disposition



* Estimate
Reference: Energy Overview Appendix 2

oil demand rose by 18 percent compared with the 1988 level. This large increase in heavy fuel oil usage occurred in the electricity generating utilities and in the pulp and paper industry in eastern Canada. Exports of main petroleum products fell by nine percent because of major refinery turnarounds in the Atlantic region, the source of most of Canada's product exports.

Canadian refineries purchased domestic crude oil at a rate of 165 300 cubic metres per day, a decrease of almost two percent compared with 1988; purchases of foreign crude oil rose by seven percent to 76 900 cubic metres per day.

Crude Oil Imports

In 1989, crude oil imports represented 30 percent of total refinery feedstock requirement in the country. On a regional basis, the Atlantic region depended totally on foreign crude oil supply, while Quebec imported 63 percent of its total requirements. Canada sources its imports from a variety of countries, including those within OPEC. Crude oil originating from OPEC countries reached 37 percent of total imports in 1989, up four percent from 1988. North Sea crudes amounted to 57 percent of total crude oil imports, down from 62 percent in 1988.

Crude Oil Exports

Total crude oil exports, including synthetic crude oil, were 102 900 cubic metres per day, a decline from the level of 112 800 cubic metres per day recorded in 1988. The 1989 total comprised 47 200 cubic metres per day of light crude oil and 55 700 cubic metres per day of blended heavy crude oil. The estimated value of crude oil exports in 1989 was \$4.4 billion compared with \$4.0 billion in 1988.

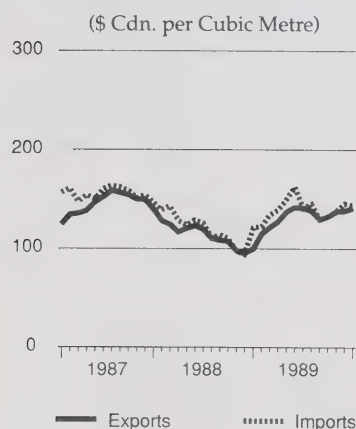
The American mid-west continued to be Canada's most important market. Smaller volumes were shipped to the eastern seaboard and American Gulf Coast destinations from Montreal, and to the American west coast and Far East markets from Vancouver.

The largest export buyers of light Canadian crude oil in 1989 were Clark Oil, United Refining, Sun Refining and Conoco; for heavy Canadian crude oil, the largest foreign buyers were Koch Refining, Mobil, Amoco and Unocal. (Refer to Oil Appendix 5 for more details.)

Main Petroleum Product Imports

In 1989, imports of main petroleum products representing 11 percent of demand, averaged 22 000 cubic metres per day, an increase of 22 percent compared with 1988. The bulk of this

Figure 4
Light Crude Oil Export
and Import Prices Netted
Back to Edmonton*



* not adjusted for quality

increase occurred in heavy fuel oil imports by the electricity generating utilities and the pulp and paper industry in the Atlantic region and Quebec.

Main Petroleum Product Exports

In 1989, exports of main petroleum products and partially processed oil decreased by about seven percent to 30 000 cubic metres per day. As a result of firmer export prices for gasoline and heavy fuel oil, export revenues increased. Figure 6 provides the average export price for the main petroleum products for

Figure 5

Canadian Crude Oil Disposition 1989

(Thousands of Cubic Metres per Day)

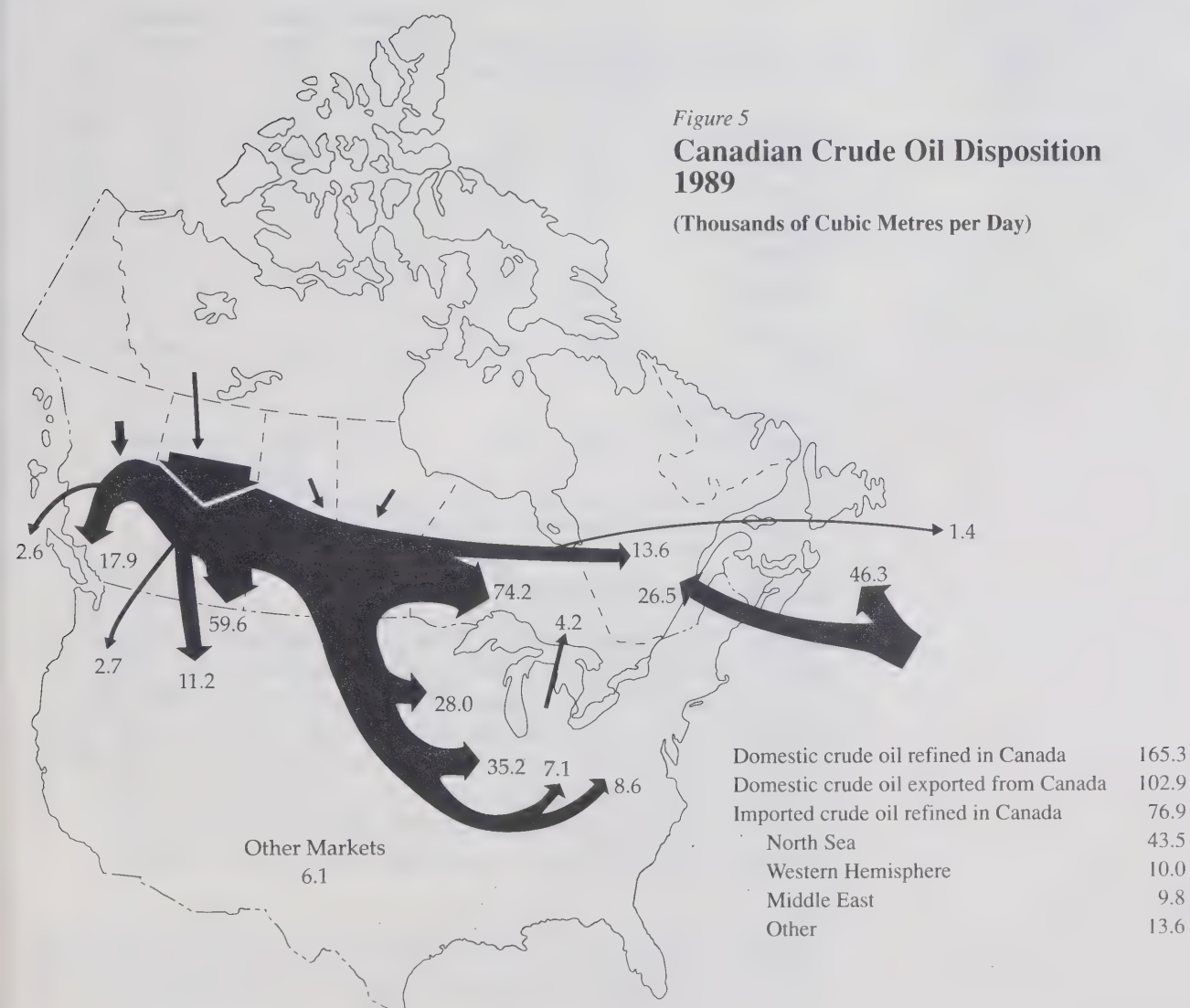
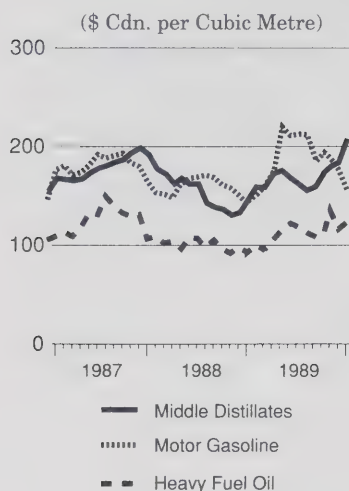


Figure 6
Main Petroleum Products
Average F.O.B. Export Price



the past three years. The rise in motor gasoline prices that occurred in 1989 is attributable to the market reaction to the Alaska oil spill and the damage inflicted on refineries by Hurricane Hugo.

The United States continued to be Canada's largest buyer of petroleum products, receiving almost 96 percent of our total exports. Exports of gasoline and heavy fuel oil from eastern Canada declined, reflecting major refinery turnarounds and increases in demand for heavy fuel oil in electricity generating plants and the pulp and paper industry. Export volumes by type of product and by region are shown in Table 2.

Table 2
Petroleum Product Exports, 1989
(Thousands of Cubic Metres)

	Motor Gasoline	Middle Distillates	Aviation Turbine Fuel	Heavy Fuel Oil	Partially Processed Oil	Total ^a
Atlantic	1 772	2 543	448	865	728	6 356
Quebec	70	374	1	106	22	573
Ontario	405	867	109	915	66	2 362
Prairies	255	330	165	84	-	834
British Columbia	380	300	112	-	32	824
Total	2 882	4 414	835	1 970	848	10 947
Average Export Price (\$/m³)	190	165	170	112	b	-

a - excludes propane, butanes, lubricants, greases, and asphalt.

b - cannot be released for reasons of confidentiality.

Oil Pipeline Capacity

During 1989, Interprovincial Pipe Line Company, a division of Interhome Energy Inc., operated at or near capacity. Apportionment was necessary in the early part of 1989. However, compared with the previous year, the overall incidence of apportionment was reduced, reflecting the decline in oil production. Trans Mountain Pipe Line Company Ltd. operated at or close to capacity throughout the year with apportionment becoming necessary only in March 1989.

Trans Mountain is continuing its assessment of the need for pipeline expansion but Interprovincial announced in November that it had shelved plans to add capacity. If expansion of either pipeline is proposed, it will be subject to Board approval.

Natural Gas

Domestic Supply and Demand

Marketable natural gas production in Canada is estimated to have been 97.5 billion cubic metres in 1989, a four-percent increase over the 1988 level.

Imports of natural gas in 1989 were 1 077.5 million cubic metres, representing an increase of 57 percent over 1988. While the majority of American gas entered Canada near Windsor, Ontario via connections between the Union Gas Limited and the Panhandle pipeline system, a new link called the St. Clair Pipeline Ltd. near Sarnia, Ontario opened in December 1989. This is seen as improving the opportunities under deregulation and free trade to increase the import of American gas into Canada.

Figure 7
Natural Gas
Supply and Disposition

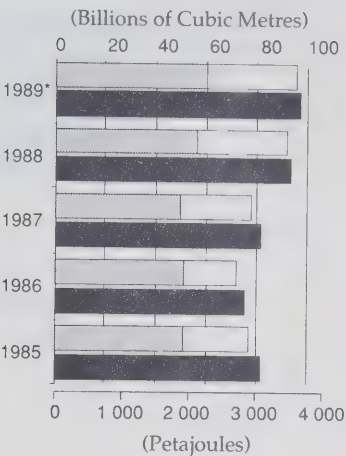
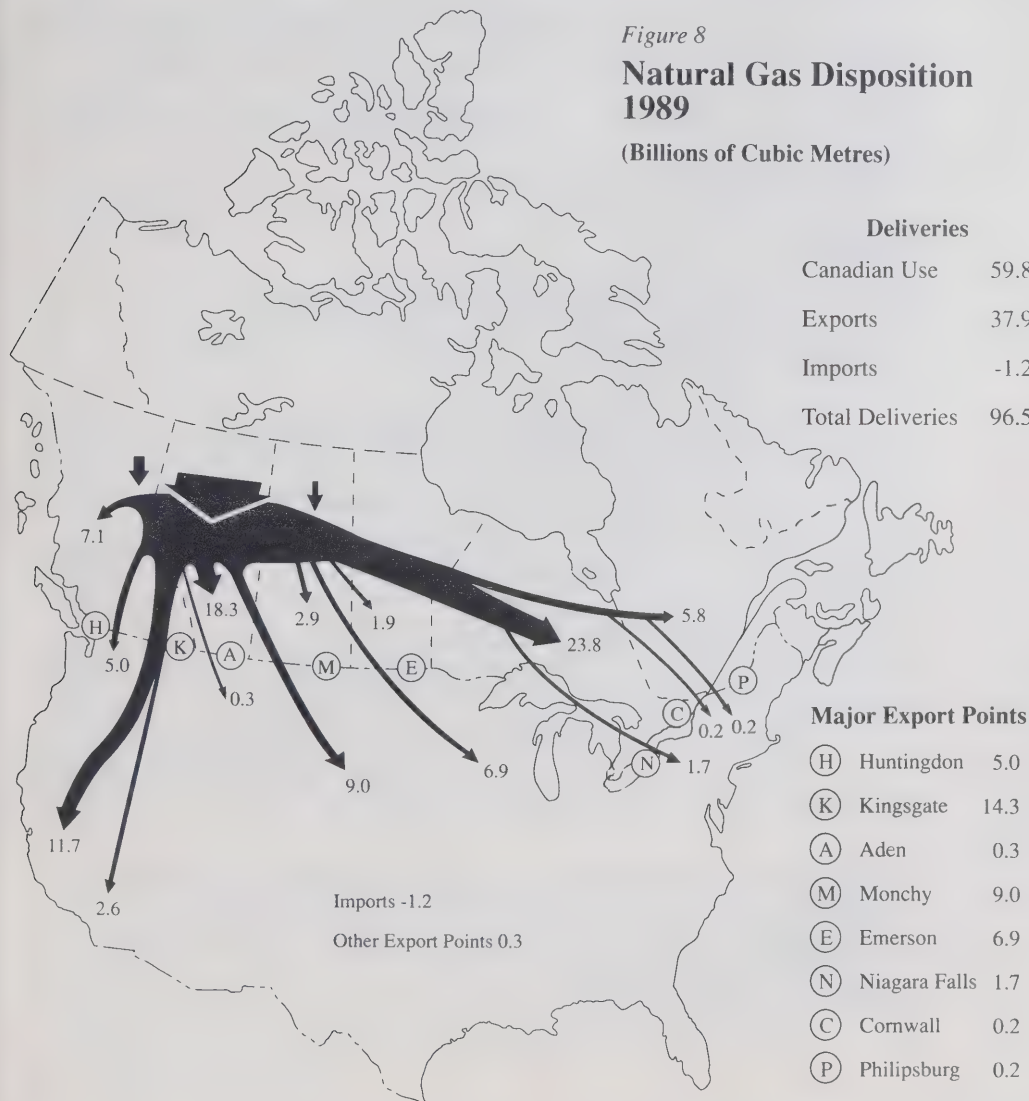


Figure 8
Natural Gas Disposition
1989
(Billions of Cubic Metres)



Canadian Use Exports
Production
Imports are too small to be shown
*Estimate
Reference: Energy Overview Appendix 3

In 1989, the Board issued 48 short-term import orders compared with 17 import orders issued in 1988 as local Ontario gas distribution companies prepared to take advantage of spot gas sales in the United States.

A detailed table of natural gas net imports into Canada by various companies is given in Gas Appendix 8.

In 1989, the effects of gas industry deregulation continued to be felt. The increase in direct sales was sizable again this year, although smaller than in 1988.

In 1989, net sales of natural gas in Canada reached 57.2 billion cubic metres, a rise of more than 8.5 percent compared with 1988. The growth in net sales was especially substantial in British Columbia and Alberta.

Consumption in the residential and commercial sector grew because of a sharp drop in average temperatures in western Canada. The increase in industrial consumption was particularly significant in British Columbia and Alberta where natural gas was used to generate electricity.

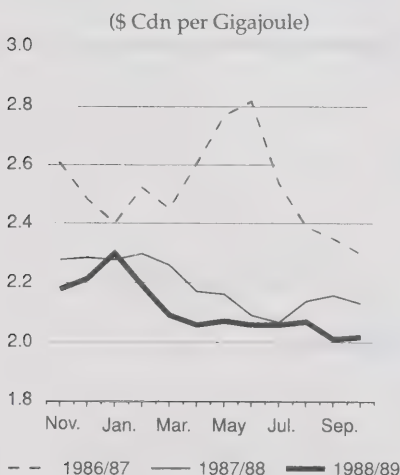
Exports

Gas exports, all of them to the United States, rose by 5.4 percent in 1989, from 35.9 billion cubic metres to 37.9 billion cubic metres.

The average price received for natural gas sales to the export market fell, reflecting a strong Canadian dollar in 1989, which rose against the American dollar by approximately 3.7 percent. Export prices averaged \$2.13 per gigajoule in 1989 compared with \$2.18 per gigajoule during 1988, a decline of approximately 2.3 percent. In terms of American dollars, the Canadian export price was up approximately 1.1 percent, from \$US 1.88 per million Btu in 1988 to \$US 1.90 per million Btu in 1989, whereas the American wellhead price was up approximately 2.2 percent from \$US 1.67 per million Btu in 1988 to \$US 1.70 per million Btu in 1989. Overall, there was an increase of 0.3 percent in total gas export revenues in 1989 to \$3.0 billion.

California accounted for 37 percent of Canada's 1989 gas export sales, the central region 40 percent, the Pacific northwest 13 percent, the northeast eight percent and the mountain region two percent (refer to Figure 10).

Figure 9
Natural Gas Average Export Prices



The central region was responsible for most of the year-over-year increase in export volumes and most of the remainder went to the Pacific northwest and mountain regions. In 1989, the Canadian share of the American gas market remained greater than seven percent of American consumption.

Access to American pipeline systems continued to improve in 1989 and by year-end, almost all major American pipelines were open-access carriers. This facilitated rapid growth in Canadian short-term sales, which grew from 11.3 billion cubic metres in 1988 to 13.8 billion cubic metres in 1989. Short-term sales accounted for about 37 percent of total natural gas exports in 1989, compared with 31 percent in 1988, and 22 percent in 1987.

At year-end, the outlook for 1990 export sales was positive; most interstate pipelines carrying Canadian gas were providing open access and gas export prices are expected to track the profile set in 1989.

Natural Gas Pipeline Capacity

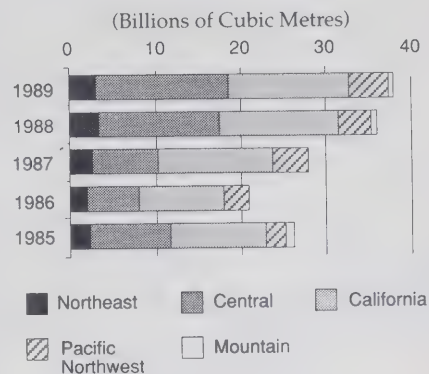
During 1989 there was little spare capacity on any of the major gas pipelines in Canada, except for a small amount available on the system of Westcoast Energy Inc. During the year, the Board approved two major facilities expansions by TransCanada PipeLines Limited and one by Foothills Pipe Lines Ltd. (The Board's decisions are more fully discussed in the section *Hearings and Inquiries*.) TransCanada has also filed another application for additional facilities to be constructed for 1991/92. The Board expects to hear the application in early 1990.

Natural Gas Liquids

The total net Canadian production of natural gas liquids in 1989 was 25.4 million cubic metres. Ethane production was 10.6 million cubic metres, propane production was 9.2 million cubic metres, and butanes production was 5.6 million cubic metres. These numbers represent an increase in production over 1988 of approximately three percent for ethane and propane and one percent for butanes.

Total natural gas liquids exports for 1989 were 6.8 million cubic metres. In 1989, ethane exports were 0.3 million cubic metres, propane exports were 3.8 million cubic metres and butanes exports were 2.7 million cubic metres. In 1988 there were no ethane exports. In 1989, propane exports rose by two percent and butanes exports declined by five percent compared with 1988.

Figure 10
Natural Gas Exports by Region



Electricity

Generating Capacity

In 1989, Canada's total net generating capacity was approximately 98 000 megawatts, an increase of about 2 000 megawatts, or two percent, over 1988.

Generation and Consumption

Total generation of electricity in 1989 was an estimated 480 000 gigawatt hours, down two percent from 1988. Approximately 60 percent of the total was supplied from hydroelectric generation, 24 percent from conventional thermal generation and 16 percent from nuclear generation. Hydroelectricity's share of total generation was down slightly from the previous year because of lower water levels experienced by Canadian utilities. Total Canadian consumption in 1989 is estimated to have been 470 000 gigawatt hours, an increase of about one percent over 1988. Figure 11 shows the supply and disposition of electricity for the past five years.

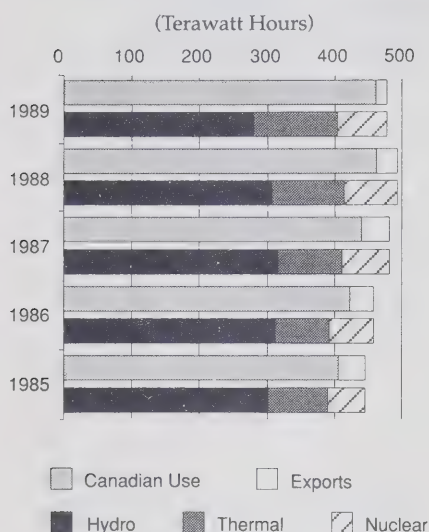
Export Sales

In 1989, the electricity export market experienced a down-turn. Canadian utilities had very little surplus energy available for export, mainly because of low water conditions and increased domestic demand in some provinces. However, there was surplus capacity available to meet the American utilities' need for short-term peaking and reserve capacity. While interruptible sales dropped by 53 percent, firm sales remained relatively stable. Interruptible sales this year made up only 55 percent of the total amount exported, compared with previous years when the range was 70 to 80 percent. As a result, total sales were the lowest since 1976 and amounted to 18 462 gigawatt hours, a decrease of 38 percent from 1988. The associated revenue of \$661 million represents a decrease of 25 percent from last year.

Canada became a net importer of electricity during the fourth quarter of 1989. Three major utilities, Hydro-Québec, Ontario Hydro and The Manitoba Hydro-Electric Board purchased energy to meet their system loads. The net export sale quantities fell by 64 percent compared with the previous year.

Figure 12 shows exports and imports in 1989 as well as interprovincial transfers for the 12 months ending 31 October 1989. Electricity Appendices 6 and 7 show the destination of all exports and imports by exporting province and importing region or state.

Figure 11
Electricity
Supply and Disposition



Imports are too small to be shown

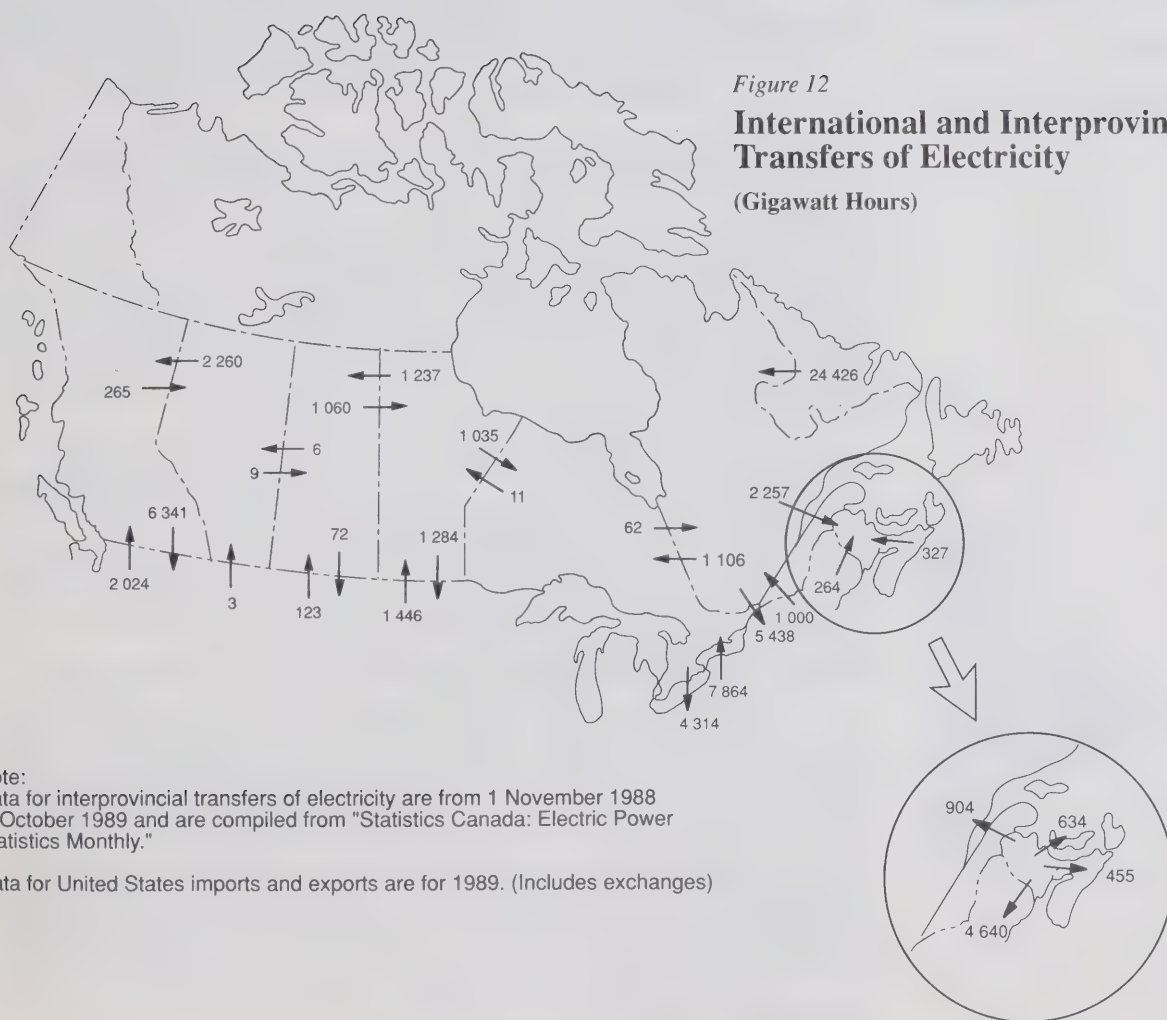
Reference: Energy Overview Appendix 4

The New Brunswick Electric Power Commission's firm sales were unchanged from last year, while interruptible sales dropped by 19 percent. Increases in domestic loads and deliveries to neighbouring provinces resulted in less surplus energy available for export.

Figure 12

International and Interprovincial Transfers of Electricity

(Gigawatt Hours)



Note:
Data for interprovincial transfers of electricity are from 1 November 1988 to October 1989 and are compiled from "Statistics Canada: Electric Power Statistics Monthly."

Data for United States imports and exports are for 1989. (Includes exchanges)

Hydro-Québec's firm sales remained relatively stable, while its interruptible sales were down by 89 percent from last year. Low reservoir levels, resulting from a continuing low rainfall and snowmelt, prevented Hydro-Québec from being more actively involved in the export market.

Ontario Hydro, historically a major exporter, became a net importer in 1989. Purchases from the United States amounted to a record high 5.7 terawatt hours with an associated cost of \$189 million. Its total export sales level dropped 55 percent from its 1988 level primarily because of two factors: an increased domestic load and provincial restrictions on acid gas emissions. In order to comply with new emission limits and to supply its own load, Ontario Hydro had to import electricity from utilities in Michigan, rather than use its own coal-fired generating stations.

As for The Manitoba Hydro-Electric Board, improved water conditions in 1989 contributed to a 70-percent increase in sales over 1988. However, this year's volume of 1 228 gigawatt hours is still below volumes that were exported a few years ago.

On the west coast, water reservoir levels were low on both sides of the border throughout most of the year, which resulted in a 33-percent decrease in exports from British Columbia. The provincial utilities had very little surplus hydraulic generation available for export; however, in response to an increased demand for energy in the United States, British Columbia Hydro and Power Authority exported energy from its Burrard natural gas plant. The Board authorized exports from this plant after B.C. Hydro obtained the required provincial environmental approvals. In past years B.C. Hydro's exports were principally supplied from hydro plants; this year only five percent of its exports were generated from hydro sources, while 38 percent were generated at Burrard. The remaining 57 percent were purchased from TransAlta Utilities Corporation of Alberta (28 percent generated from natural gas and 29 percent from Canadian coal) and resold in the United States.

Though hydro still remained the leading source of all electricity exported, its share, which in previous years comprised approximately 70 percent of all exports, dropped to 42 percent in 1989. Other fuels used to produce exported electricity were natural gas at 15 percent, nuclear at 12 percent, imported coal at eight percent, domestic coal at 11 percent, imported oil at six percent and domestic oil at two percent. The remaining four percent was electricity purchased from one American utility and re-sold to another American utility.

Oil and Gas Activity and Reserves

Exploration and Development Activity

Upstream activity by the Canadian oil and gas industry was lower in 1989 than in 1988. This lower activity level can be attributed to:

- uncertainty about future oil and gas prices;
- termination of government incentive programs;
- the impact of mergers and takeovers; and
- the ongoing rationalization of producing interests and emphasis on cost reductions.

Investment in Crown lands is one of the leading exploration activity indicators. During 1989, land sale expenditures were well below last year's level, reflecting the lower bonuses paid for the leases. In 1989, the provincial and federal governments leased the mineral rights to 3.6 million hectares, a decrease of only two percent from the 3.7 million hectares leased in 1988. However, the average price per hectare in 1989 was \$134, compared with \$177 and \$269 per hectare in 1988 and 1987, respectively. The price per hectare during 1989 fluctuated from an average of \$165 per hectare in the first quarter to \$118 per hectare in the last quarter.

The total amount spent on land sales throughout Canada in 1989 was 26 percent lower than in 1988. During 1989, the oil and gas industry spent \$485.6 million on land sales, compared with \$659.4 million in 1988 and \$793.5 million in 1987.

The number of wells drilled decreased by approximately 39 percent, from some 8 950 wells in 1988 to about 5 470 wells in 1989. In 1989, there was a shift from oil exploration and development activity to gas exploration and development activity, attributable to improved market opportunities for natural gas and the stabilizing of gas prices.

Drilling rig activity in 1989 was lower than the comparable 1988 levels of activity, except for mid-November through December. Within any particular year, rig activity tends to be somewhat erratic, with the variability being influenced in part by seasonal access to drilling locations.

Geophysical activity in 1989 remained below the 1988 level, both in terms of the average number of active crews per month and the number of kilometres shot per month. The average number of active crews per month for each of the last three years is illustrated in Figure 17. Geophysical activity traditionally

Figure 13
Land Sales

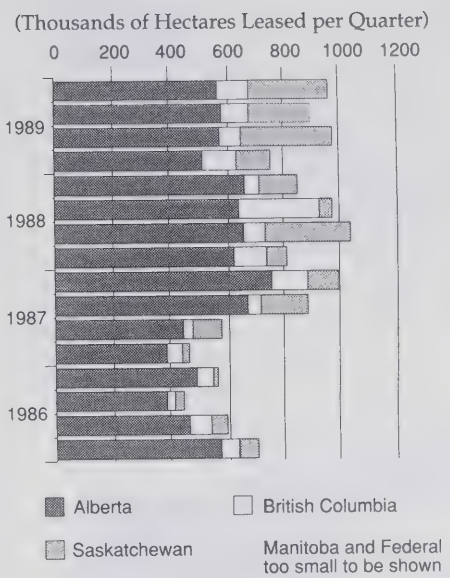


Figure 14
Land Sales

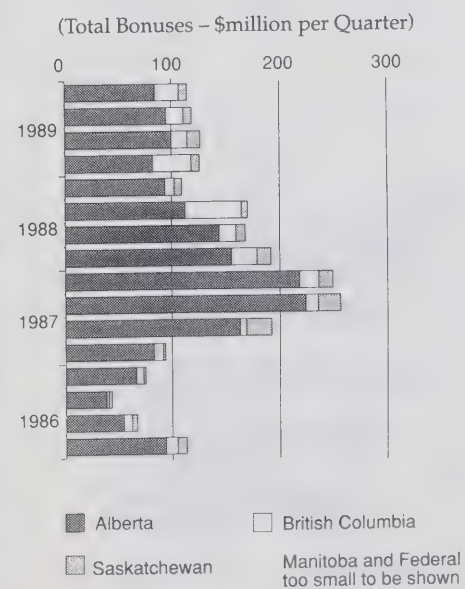


Figure 15
Canadian Wells Drilled

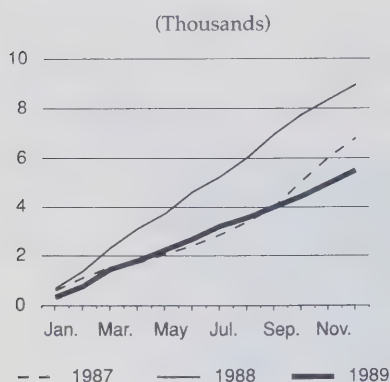


Figure 16
Canadian Rig Activity

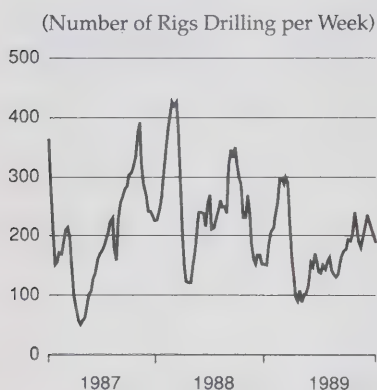
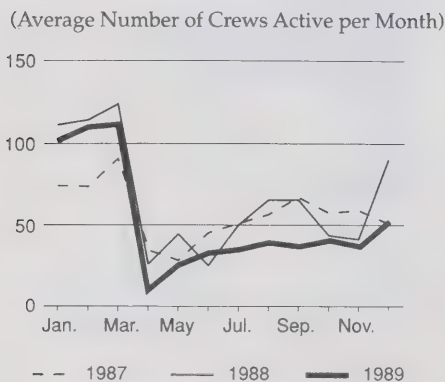


Figure 17
Geophysical Activity — Canada



increases during the winter months due to improved accessibility in some areas of the provinces.

Exploration and development expenditures in Canada during 1989 were about \$5.5 billion. This represents a decrease of 18 percent from the \$6.7 billion spent in 1988.

Oil and Gas Reserves

The Board's estimate of remaining established reserves of conventional crude oil, as of 31 December 1988, is 666.2 million cubic metres (Table 3), or 39.3 million cubic metres less than the estimate for year-end 1987.

Table 3
Estimated Established Reserves of Crude Oil
At 31 December 1988
(Millions of Cubic Metres)

Conventional Crude Oil	Initial	Remaining
British Columbia	86.9	18.1
Alberta	2 141.6	502.8
Saskatchewan	469.5	110.8
Manitoba	35.1	8.9
Southern Yukon & NWT	35.2	24.8
Ontario & Other		
Eastern Producing Areas	10.5	0.8
Subtotal	2 778.8	666.2
Crude Bitumen^(a)		
Surface-mineable	644.0	497.0
In Situ	99.0	69.5
Subtotal	743.0	566.5
Total for Canada	3 521.8	1 232.7

Note: The numbers on this table have been rounded.

(a) Source: AERCB, Report ST89-18. (Based on developed projects only.)

Initial (i.e., before production) established reserves of conventional crude oil increased 34.5 million cubic metres through discoveries, extensions to reserves and revisions to previous estimates. Since 1985, annual reserves additions have not replaced production.

The Board includes estimates of the initial and remaining established reserves for crude bitumen. These estimates are for developed projects only and are based on estimates for surface-mineable and in situ projects contained in the Alberta Energy Resource and Conservation Board (AERCB) annual reserves report.

The Board does not currently include oil discovered in the frontier regions in its established reserves estimates, because of uncertainty as to the economic viability of these reserves. Small deliveries of crude oil have been made by tanker from the Bent Horn field in the Arctic Islands and from the Amauligak field in the Beaufort Sea.

Table 4
Estimated Established Reserves of Marketable Natural Gas
At 31 December 1988
(Billions of Cubic Metres)

Conventional Areas	Initial	Remaining
British Columbia	409.5	208.5
Alberta	3 009.5	1 545.9
Saskatchewan	109.4	66.8
Southern Yukon & NWT	14.5	8.0
Ontario & Other		
Eastern Producing Areas	40.1	9.9
Subtotal Conventional Areas	3 583.0	1 839.2
(Subtotal Conventional Areas in exajoules)	137.8	70.7
Frontier Areas		
Mackenzie Delta/Beaufort Sea	308.5	308.5
Subtotal Frontier Areas	308.5	308.5
(Subtotal Frontier Areas in exajoules)	11.4	11.4
Total for Canada	3891.5	2147.7
(Total for Canada in exajoules)	149.2	82.1

Note: The numbers on this table have been rounded.

Initial established reserves of marketable natural gas in the conventional areas increased 83.5 billion cubic metres, through discoveries, extensions to reserves and revisions to previous estimates. The re-assessment of the initial established reserves in the Mackenzie Delta/Beaufort Sea area resulted in an increase of some 159.0 billion cubic metres. In conjunction with the review of the Mackenzie Delta area, the Board also reconsidered its estimation of reserves in the Arctic Islands. Due to uncertainty as to development timing and the economic viability of these reserves, the Board has concluded that at this time it would be appropriate to exclude this gas from the established reserves category and consider it to be a discovered resource. As a result, the initial established reserves in Canada have been reduced by 69.7 billion cubic metres. Improved economic conditions in the future could return these

Figure 18
Exploration and Development Expenditures

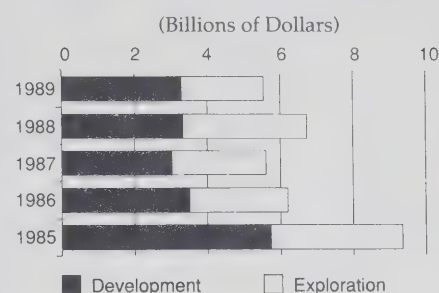


Figure 19
Crude Oil
Reserves Additions vs Production
Conventional Areas

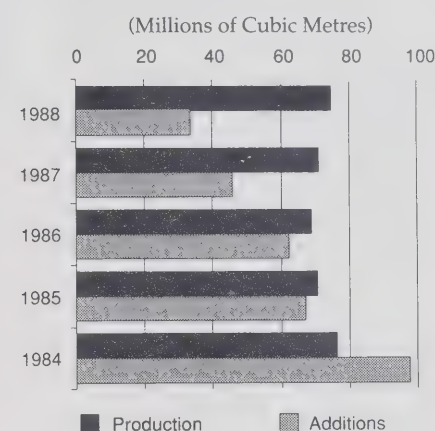
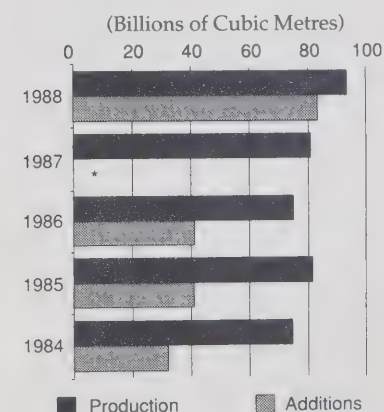


Figure 20
Natural Gas
Reserves Additions vs Production
Conventional Areas



*In 1987, reserves additions amounted to 0.3 billion cubic metres.

discovered Arctic Island resources to the established reserves category.

As a result of the above discoveries and revisions and extensions in the conventional and frontier areas of Canada, the Board's estimate of remaining established reserves of marketable natural gas, as of 31 December 1988, is 2147.7 billion cubic metres (Table 4). This estimate is 172.0 billion cubic metres lower than the estimates for year-end 1987. In the conventional areas, the remaining established reserves decreased by 18.7 billion cubic metres, as reserves additions did not replace production during the year.

In addition to the above established reserves of crude oil and natural gas in the conventional and frontier areas, the Board recognizes the estimates of Canada Oil and Gas Lands Administration (COGLA) discovered resources in the frontier areas. These estimates are provided in Table 5 and in the future could be classified as established reserves as development timing and economics become more certain.

Table 5
Discovered Resources ^(a) in the Frontier Areas
At 31 December 1988

	Crude Oil (Millions of Cubic Metres)	Natural Gas (Billions of Cubic Metres)
Mackenzie Delta/ Beaufort Sea	253.2	308.5 ^(b)
Grand Banks/ Labrador	212.0	146.8
Nova Scotia	22.9	162.4
Arctic Islands	65.7	416.4
Other Areas	0.0	0.0
Total Frontier Areas	553.8	1034.1

(a) Discovered resources are the best current estimates of the quantity of crude oil and natural gas potentially recoverable under current technology and not constrained by economic viability, specifically proved by drilling, testing or production, plus that judgment portion of the contiguous recoverable resource that is interpreted to exist, from geological, geophysical or similar information, with reasonable certainty.

(b) The Board recognizes this discovered resource as established reserves, as noted in Table 4.

Note: The numbers on this table have been rounded.

Source: COGLA Annual Report 1988.

The Year at a Glance

Highlights of major activities during 1989

NATURAL GAS

- granted an 11-year licence extension to Alberta and Southern to export an additional 116.4 billion cubic metres (4.1 trillion cubic feet) of natural gas (GH-5-88)
- granted licences to Esso, Gulf and Shell Canada authorizing the export of natural gas from the Markenzie Delta to the United States. Esso is authorized to export 144 billion cubic metres (5.1 trillion cubic feet); Gulf 91 billion cubic metres (3.2 trillion cubic feet) and Shell Canada 25 billion cubic metres (0.9 trillion cubic feet). A review of the decision has been requested by the Council of Canadians and the Dene/Metis Negotiations Secretariat (GH-10-88)
- approved a seven-year licence extension to Western Gas Marketing and an increase in the volume of 6.3 billion cubic metres (222.6 billion cubic feet) of natural gas; also granted a six-year licence extension to ProGas and an increase in the volume of 23.3 billion cubic metres (0.8 billion cubic feet) of natural gas (GH-9-88)
- granted a 15-year licence to Amoco to export 3.85 billion cubic metres of natural gas (137 billion cubic feet) (GH-3-89)
- approved a three-year licence to BC Gas to export/import 184 million cubic metres (6.5 billion cubic feet) of natural gas (GH-3-89)
- authorized five companies, Canterra, Norcen, Poco, Shell Canada and Western Gas Marketing, to export a total of up to 22 billion cubic metres (0.77 trillion cubic feet) of natural gas over a 16-year period. The Board denied an application by Vector Energy (GH-8-88)
- approved four natural gas export applications by Amoco, ProGas, Western Gas Marketing and ICG (Ontario) to export a total of 10.4 billion cubic metres (367 billion cubic feet). The Board denied four other gas export applications filed by

Direct Energy, Western Gas Marketing, Indeck and Shell Canada (GH-1-89)

- held a workshop in conjunction with the Canadian Energy Research Institute and discussed technical matters related both to benefit-cost analysis and the analysis of the impact of incremental exports on Canadian gas markets

ELECTRICITY

- granted B.C. Hydro's application for an 18-month extension of its licence EL-162 (EH-1-89)
- granted Hydro-Québec's application to export to the New York Power Authority 800 megawatts of firm diversity power and up to 3000 gigawatt hours of associated energy annually (EH-2-89)

ENERGY STUDIES

- issued *Natural Gas Market Assessment, 1989-1991*, the second of a series of studies to be published from time to time, providing an assessment of the functioning of the

Canadian natural gas market and a review of the short-term outlook for the Canadian natural gas supply and demand

PIPELINES

- approved a \$573-million expansion of the TransCanada system comprising 407 kilometres of pipeline, four meter stations and five compressor units for service to begin 1 November 1990

TOLL REGULATION

- established new tolls that TransCanada may charge for the transportation of natural gas to eastern Canada at a level 11 percent lower than the tolls requested by TransCanada
- ruled on the method of allocating the capacity which will become available on the Westcoast pipeline and rendered decisions on queuing procedures; denied a proposal by Westcoast to provide service at a promotional toll level to the Vancouver Island Pipeline Project
- considered Westcoast's rate base, cost of service, and rate of return for the 1990 test year during Phase II of Westcoast's toll hearing; a decision was issued on 19 December 1989

- heard an application by TransCanada for new tolls effective 1 January 1990
- ruled on a request by North Canadian Oils for access to Foothills pipeline and established criteria for pipeline access and procedures for allocating firm capacity

LEGAL ACTIONS

- The Federal Court of Appeal held that a six-kilometre pipeline proposed to be built by Cyanamid Canada Pipeline Inc. in southwestern Ontario fell within provincial rather than federal jurisdiction; a further appeal by Cyanamid to the Supreme Court of Canada was discontinued on 25 September 1989
- Midland Cogeneration Venture Limited applied to the Federal Court of Appeal for leave to appeal the Board's June 1989 decision in which the Board authorized five Canadian companies to export natural gas to Midland and Consumers Power Company and conditioned the licences so that the exports to Midland could not exceed those to Consumers in any one year. By a letter to the Court dated 29 November 1989, counsel for Midland indicated that Midland was assessing the

timeframe within which it wished to pursue this appeal and requested that the Court defer consideration of the appeal case until Midland finalized its plans and so advised the Court.

- Western Gas Marketing, as agent for TransCanada, Indeck, Shell Canada and Niagara Mohawk launched various actions in the Federal Court of Appeal relating to the Board's decision on GH-1-89, denying their export applications. All these actions relate for the most part to the fairness of the procedure used by the Board in conducting its benefit-cost analysis in assessing the export applications in question and to the question of whether the use of benefit-cost analysis to restrict exports is contrary to the Free Trade Agreement.
- On 21 December 1989, the Independent Gas Users Association applied to the Federal Court (Trial Division) for orders (a) setting aside the decision taken at the GH-5-89 pre-hearing conference to not include alternative toll methodology (i.e. rolled-in vs. incremental) in the list of issues to be considered in GH-5-89, (b) requiring the Board to add the issue to the list of issues and (c) prohibiting the Board from commencing GH-5-89

until the issue is included. The applications are to be heard by the Federal Court in February 1990.

REGULATORY PROCESS

- Bill C-23, an amendment to the *National Energy Board Act*, includes the incorporation of the new electricity policy, housekeeping amendments, a reduction in the number of permanent Board Members from 11 to 9, and the provision for the Board to recover the cost of its operation; Bill C-23 was being considered by Parliament at year-end
- Part VI Regulations are being amended to reflect the new electricity export policy and to reflect Market-Based Gas Export Procedures

- the Board issued for comment a draft Memorandum of Guidance regarding the early public notification of proposed applications for pipeline construction or expansion, the export of electricity, or the export of high-sulphur crude oil from the west coast of Canada. The comments received are currently under review

ORGANIZATION AND ADMINISTRATION

- Mme Livia Thur, Associate Vice-Chairman, resigned from the Board on 1 April
- Mr. A. Digby Hunt, Associate Vice-Chairman, retired from the Board on 4 August
- Mrs. Anita Côté-Verhaaf was appointed Board Member effective 1 September
- Mr. Kenneth W. Vollman was re-appointed temporary Board Member for a three-year term effective 30 September. He was also re-appointed Administrator of the Northern Pipeline Agency
- Mr. John R. Jenkins, Board Member, retired from the Board on 12 November, after 30 years of service
- Mrs. Marie Tobin was appointed Secretary of the Board on 16 October
- Ms. Martha Musgrove was appointed Board Member effective 1 December 1989
- Ms. Céline Bélanger and Mr. Roy Illing were appointed Board Members effective 1 January 1990
- Effective 1 February, the Board suspended its standing panels on a trial basis. Non-hearing matters are now being considered by the Board as a whole
- The Board has received Treasury Board approval to proceed with full recovery of its operating costs from regulated industries, subject to the passage of amendments to the *Act*. Consultation with industry on a proposed implementation plan took place during 1989.

Highlights of the Pipeline Companies Under National Energy Board Jurisdiction

	1989 Rate Base ¹ (\$000,000)	1989 Revenue Requirement (\$000,000)	Length (Including Loops) (km)	1989 Actual Throughput (10 ⁶ m ³)
GROUP 1² Gas				
Alberta Natural Gas Company Ltd.	17	28	172	14 635
Foothills Pipe Lines Ltd.	583	173	850	14 416
Gazoduc Trans Québec & Maritimes Inc.	369	71	341	2 752
TransCanada PipeLines Limited	2 505	938	10 675	38 908
Westcoast Energy Inc.	786	273	4 497	11 817
				(10 ³ m ³)
GROUP 1 Oil				
Cochin Pipe Lines Ltd.	48	31	1 125	3 783
Interprovincial Pipe Line Company, a division of Interhome Energy Inc.	624	272	6 652	79 894
Interprovincial Pipe Line (NW) Ltd.	305	73	868	1 836
Trans Mountain Pipe Line Company Ltd.	96	63	1 328	10 194
Trans-Northern Pipelines Inc.	38	27	847	9 791
GROUP 2				
Total	NA	N/A	3 195	N/A

1 Net plant or equivalent, including working capital.

2. Group 1 consists of the ten major pipeline companies, financial data for which are based on preliminary estimates obtained from those companies. Group 2 is comprised of the remaining 39 smaller pipeline companies which are regulated on a complaint basis only and for which financial data are not available.

Board Activities

... included 13 hearings across Canada for a total of 151 hearing days.

Hearings and Inquiries

During 1989, the Board conducted all or part of 13 hearings in locations such as Vancouver, Inuvik, Calgary, Ottawa and Montreal, for a total of 151 hearing days.

This section summarizes the major decisions issued in 1989 following public hearings.

Natural Gas Exports

Alberta and Southern Gas Co. Ltd. - Extension of Licence - GH-5-88

In November 1987, Alberta and Southern applied to vary licence GL-99, which authorizes the export of natural gas to Pacific Gas Transmission for resale to Pacific Gas and Electric Company in northern California. The company asked for a 16-year extension of the term of the licence, from 1994 to 2010, and an increase of 169.3 billion cubic metres (6.0 trillion cubic feet) in the total volume to be exported.

The Board held a public hearing in Calgary in December 1988 and released its Reasons for Decision in June 1989. The Board granted an 11-year extension to the term of the original licence and authorized Alberta and Southern to export an additional 116.4 billion cubic metres (4.1 trillion cubic feet) of natural gas beginning in October 1994.

Esso Resources Canada Ltd./Gulf Canada Resources Ltd./Shell Canada Limited - Licences - GH-10-88

By applications dated 21 September 1988, Esso and Shell Canada requested authorization to export 144 billion cubic metres (5.1 trillion cubic feet) and 25 billion cubic metres (0.9 trillion cubic feet), respectively, of natural gas from the

Mackenzie Delta to the United States over a 20-year period between 1996 and 2000. Gulf filed a similar application on 8 February 1989 requesting a licence to export 91 billion cubic metres (3.2 trillion cubic feet) of natural gas.

In April 1989, the Board held a public hearing over a ten-day period in Ottawa and Inuvik and released its Reasons for Decision in October 1989, approving the requested licences. The licences are conditioned to ensure that Canadians will have the opportunity to purchase Mackenzie Delta gas on terms and conditions similar to those under which the gas would be exported. The companies are required to file executed sales contracts with the Board for approval.

The Board received applications by the Council of Canadians and the Dene/Metis Negotiations Secretariat to review the decision. In accordance with its rules of practice, the Board decided to seek comments on the applications. A decision on whether a review is justified will be made in the spring of 1990.

Western Gas Marketing Limited/ProGas Limited - Extension of Licences - GH-9-88

Western Gas Marketing and ProGas respectively filed on 16 September 1988 and on 25 October 1988 applications to vary their existing licences to export natural gas to the United States.

Western Gas Marketing requested that the term of licence GL-83, which authorizes natural gas exports to Boundary Gas Inc., be extended from November 1996 to January 2003, and that the exportable volume be increased by 6.3 billion cubic metres (222.6 billion cubic feet).

ProGas requested that its licence GL-98, which authorizes exports to four American interstate pipeline companies serving the American mid-west and northeast, be extended by six years, from 1994 to 2000, and allow for an increase in the exportable volume by 23.3 billion cubic metres (823 billion cubic feet).

A public hearing to consider both applications was held in Calgary on 25 January 1989. The decision approving the licence amendments was issued in June.

Amoco Canada Petroleum Company Ltd. - Licence - GH-3-89

In an application dated 12 January 1989, Amoco requested authorization to export 3.85 billion cubic metres (137 billion cubic feet) of natural gas to Washington Natural Gas Co. of Seattle over a 15-year period beginning 1 November 1989.

The Board held a one-day public hearing in Vancouver in March 1989, and released its Reasons for Decision in May 1989, approving the requested licence.

BC Gas Inc. - Export/Import Licence - GH-4-89

In an application dated 8 May 1989, BC Gas requested authorization to export 184 million cubic metres (6.5 billion cubic feet) of natural gas over a three-year period.

BC Gas stated that the gas would be exported at Huntingdon, British Columbia, for injection into storage facilities located at the Jackson Prairie storage facility in Washington State. The gas would be "re-imported" into Canada through exchange arrangements with gas exporters during the winter period for use by BC Gas to meet its peaking requirements. As a result, there would be no net export or physical re-import of gas.

A public hearing to consider the application was held in July in Vancouver. The decision approving the licence was also issued in July.

Licences in Support of the TransCanada PipeLines Limited - 1989/90 Facilities Application - GH-4-88

During 1988, the Board received a number of applications for new export licences or amendments to existing licences. These licences would support the facilities requested by TransCanada in an application dated 28 July 1988 for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec. (Please see pipeline facilities section.)

- a. Canterra Energy Ltd., dated 13 September 1988
- Norcen Energy Resources Ltd., dated 14 September 1988
- Poco Petroleums Ltd., dated 16 September 1988
- Shell Canada Limited, dated 14 September 1988
- Western Gas Marketing Limited, dated 15 September 1988

The companies proposed to export a total of up to 22 billion cubic metres (0.77 trillion cubic feet) of gas to the Consumers Power Company and Midland Cogeneration Venture Limited Partnership of Michigan. The exports would take place at

Emerson, Manitoba over a 16-year period between 1988 and 2005.

b. Vector Energy Inc., dated 29 August 1988

Vector proposed exporting up to 380 million cubic metres (13.4 billion cubic feet) per year over a 20-year period between 1989 and 2009. The gas would be sold to Altresco Inc. of Denver, Colorado, for a proposed cogeneration facility to be constructed in Pittsfield, Massachusetts.

c. Direct Energy Marketing Limited, dated 12 October 1988

Direct Energy planned to export up to 936 million cubic metres (33 billion cubic feet) over 15 years, beginning November 1989. The gas would be sold to Consolidated Fuels, which would use the gas to fuel the Arrowhead cogeneration facility to be constructed in East Georgia, Vermont. In January 1989, Direct Energy requested that consideration of its application be deferred. The Board decided to consider Direct's application as part of its review of TransCanada's 1990 facilities application.

The Board held a public hearing on these applications in Calgary in January 1989 and issued its Reasons for Decision in July. The Board issued the licences requested by the first five companies listed above. These five licences generally reflect the quantities and licence periods applied for with the exception of Poco's licence to export 2 715 million cubic metres (96 billion cubic feet) over an 11-year period, rather than the requested 3 750 million cubic metres (132.5 billion cubic feet) over 15 years. The Board denied the application filed by Vector Energy Inc.

On 25 July 1989, Vector requested that the Board review its decision. In support of its application for review, Vector filed a revised application. On 3 August 1989, the Board decided to deny the application for review and to treat Vector's request as a new application for a gas export licence; the latter is scheduled to be heard in a public hearing early in 1990.

Canterra, Shell Canada, Norcen, Poco and Western Gas Marketing applied on 2, 13, 19 and 26 October and 1 November, respectively, to amend the condition in their licences that limits the annual amount of the exports to Midland to no more than those to Consumers. (Refer also to *Legal Actions*.)

***Licences in Support of the TransCanada PipeLines Limited -
1990/91 Facilities Application - GH-1-89***

By 15 February 1989, the Board had received a number of applications for new export licences or amendments to existing licences. These licences would support the facilities requested by TransCanada in an application dated 29 December 1988 and subsequently revised in March and May 1989, for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec. (Please see pipeline facilities section).

Details of the eight applications follow.

Shipper/Importer	Term Quantity	
	Billion Cubic Metres	Billion Cubic Feet
At Sprague, Manitoba: ICG Utilities (Ontario) Ltd./ Export for re-import at Rainy River, Ontario	3 150	111
At Niagara Falls, Ontario: Amoco Canada Petroleum Limited/ Consolidated Edison ProGas Limited/Texas Eastern Transmission Company	4 778 No increase in term quantity ¹	169
At Cornwall, Ontario: Western Gas Marketing Limited/ Megan-Racine Associates, Inc.	1 820	64
At Philipsburg, Quebec: Direct Energy Marketing Limited/ Consolidated Fuels Co.	936	33
At Niagara Falls, Ontario: Shell Canada Resources Ltd./ Cogen Energy Technology Inc. Indeck Gas Supply Corporation/ Indeck Energy Services of Oswego Inc.	2 755 3 500	97 124
At Gananoque, Ontario: Western Gas Marketing Limited/ Niagara Mohawk Power Corporation	7 910	279

1. ProGas requested that the export points of two existing licences be changed from Emerson and Monchy to Niagara Falls.

The Board held a public hearing on these applications commencing 12 April in Calgary. The hearing continued in Ottawa on 25 April, and ended on 13 July. In November 1989, the Board released its decision to approve the first four

applications and deny the last four. Reasons for the decisions were issued in December.

Information on Gas Supply Required to be Provided by TransCanada PipeLines Limited in Support of its 1991/92 and 1992/93 Facilities Application - GHW-3-89

In July, after considering issues raised by Union Gas Limited and C-I-L- Inc., the Board decided to hold a public hearing, by way of written submission, to obtain the views of interested parties regarding the information on gas supply required to be provided in support of TransCanada's 1991/92 and 1992/93 facilities applications.

After considering 54 submissions, and having regard for the impact of its decision on the timing of the refile of TransCanada's facilities application, the Board issued its decision on 3 November 1989 with the reasons to follow at a later date.

The Board decided not to allow flexibility with respect to the project-specific supply information specified in the draft NEB Rules of Practice and Procedure, except in circumstances when the incremental volume included in TransCanada's facilities application represents normal growth in a shipper's existing market. In these circumstances, TransCanada is required to provide evidence with respect to the shipper's existing gas supply arrangements and gas supply acquisition process, as well as the status of supply acquisition for the incremental volumes included in its facilities application.

The Board also decided that an overall supply assessment is necessary and complementary to project-specific supply information. Therefore, the Board decided that TransCanada is required to provide evidence that there is, or will be, an adequate supply of natural gas to ensure sufficient utilization of its total pipeline capacity in the long term.

Electricity Exports

British Columbia Hydro and Power Authority - Licence Extension - EH-1-89

In August 1988, B.C. Hydro requested authorization to extend the term of its licence EL-162, issued in 1984, beyond its expiry date of 30 September 1988. The licence allows for the export of firm power and energy to utilities in Washington, Oregon, and California. In September 1988, the Board decided to extend the termination date of the licence by six months, to 31 March 1989 to allow time for review of B.C. Hydro's request.

A hearing was held in Vancouver on 6 and 7 March 1989 and the Board granted B.C. Hydro an 18-month extension to 30 September 1990 on 28 March 1989.

***The New Brunswick Electric Power Commission -
Condition 6 (b) - EHW-1-89***

By letter dated 10 March, New Brunswick Power requested clarification of condition 6(b) of its interruptible export licences EL-140, EL-143 and EL-145. Condition 6(b) requires that energy be offered to economically accessible Canadian markets prior to being exported.

The Board decided to provide interested parties an opportunity to comment on the interpretation of this condition prior to responding to New Brunswick Power.

After reviewing the comments received, the Board decided on 17 August that the purpose of the offer condition was to ensure that, before an export would be made, each neighbouring utility would have an opportunity to purchase an amount of electricity equal to the amount proposed to be exported under the same terms and conditions, including price.

Hydro-Québec - Licence - EH-2-89

In an application dated 15 February 1989, Hydro-Québec applied for authorization to export to the New York Power Authority 800 megawatts of firm diversity power and up to 3 000 gigawatt hours of associated energy each year during the period beginning June 1991 and ending October 1998.

A public hearing was held in Montreal from 16 to 18 May 1989. The decision approving the licence was issued in September.

Pipeline Facilities¹

TransCanada PipeLines Limited - 1989/90 Facilities - GH-4-88

In January 1989, the Board released its Reasons for Decision on TransCanada's 28 July 1988 application for facilities required to meet increased domestic and export markets as of 1 November 1989. The decision itself had been issued in December 1988 to allow TransCanada to proceed with a cost-effective winter construction plan, to provide the necessary lead time for compressor and pipe procurement, and to address concerns regarding the financing requirements of certain cogeneration projects.

1. Includes toll design, where applicable.

TransCanada PipeLines Limited - 1990/91 Facilities - GH-1-89

TransCanada filed an application dated 29 December 1988 for approval to expand its pipeline system in Saskatchewan, Manitoba, Ontario and Quebec in order to increase, by 1 November 1990, its capacity to serve expanding domestic and export markets.

TransCanada proposed to add 471 kilometres of pipeline and new compression at an estimated cost of \$652 million. The application included two sections of new pipeline, 26 kilometres at Gananoque, Ontario, and 36 kilometres at Napierville, Quebec. The remaining kilometres consisted of parallel pipeline across TransCanada's system, mostly in Saskatchewan and Manitoba.

In March 1989, TransCanada revised its application, requesting approval to construct, in addition, the 206-kilometre Dawn Line, and a 7-kilometre loop on its Emerson Extension in Manitoba. As a result, the estimated cost of the requested facilities was revised to \$868 million.

In early May, TransCanada further revised its application, withdrawing its proposal to construct the Dawn Line as a result of an agreement between TransCanada and Union Gas aimed at minimizing the duplication of pipeline facilities. Under the agreement, Union Gas will transport gas for TransCanada from Dawn to Kirkwall. TransCanada received in early May the Board's approval to purchase Union Gas' Kirkwall Line and, in its revised application, proposed to install 32.5 kilometres of parallel pipeline alongside it. As a result of the revised application, the total cost of the 1990/91 facilities was estimated to be \$709 million.

A public hearing on the application was held in Calgary and Ottawa between 12 April and 13 July 1989. At the same hearing, the Board also considered a number of applications to export natural gas to the United States (see previous section on gas export applications).

The Board issued its decision on 21 August 1989, ahead of its reasons because of the lead time required for the procurement of compressors and pipe as well as other facilities planning requirements.

In its decision, the Board approved the construction and installation of 407 kilometres of pipeline, four meter stations, and five compressor units. The estimated cost of the approved facilities is \$593 million.

The Board denied the relocation of a compressor unit to TransCanada's Kirkwall Line, which was not related to the 1990 requirements and 35 kilometres of pipeline on TransCanada's western section, which would have provided loss-of-critical-unit protection.

The Board initially did not render a decision on the proposed Gananoque Extension in eastern Ontario. The Board had previously informed parties that it would re-open the hearing to obtain further evidence on route selection and environmental matters related to the Gananoque Extension, if the related application for the export of natural gas by Western Gas Marketing Limited was approved. On 20 November 1989, the Board issued its decision on the latter application and denied the export licence. Consequently, the Gananoque extension and associated metering facilities were denied.

Foothills Pipe Lines (Alta.) Ltd. - Eastern Leg Expansion - GHW-1-89

In an application dated 11 April, Foothills requested approval to install decompression /recompression capability around a gas stripping plant near Empress, Alberta. The new facilities would remove a bottleneck on the Eastern Leg of Foothills' pipeline and would allow the company to increase the operating pressure of its pipeline, while continuing to strip the gas stream of ethane and other heavier hydrocarbons prior to leaving Alberta.

The higher pressure would allow Foothills to increase the capacity of the Eastern Leg Prebuild by approximately 25 percent, to 38.2 million cubic metres per day (1 350 million cubic feet per day) once further minor modifications were made to the system.

The expansion is estimated to cost \$34.5 million.

The Board approved Foothill's application on 30 June.

Citizens' Coalition for Clean Water - St. Clair Pipelines Ltd. - Review of Environmental Conditions - GH-3-88

The Board issued a decision in October 1988, approving an application by St. Clair Pipelines to construct a pipeline across the St. Clair River approximately 25 kilometres south of Sarnia, Ontario. The method of construction approved was directional drilling under the river.

The Citizen's Coalition for Clean Water filed an application, dated 15 March 1989, requesting that the Board review its

decision. The Coalition, representing the residents of the Town of Wallaceburg and the Walpole Island Indian Reservation, was concerned with the protection of their water supply. Pollution could have been caused by the re-introduction of contaminants into the water from the disturbed riverbed, or from an incident with the use and disposal of the drilling mud.

From its review, the Board issued additional environmental conditions relating to the testing of the quality of the river water, the handling of drilling mud, and the disposal procedures for those muds. St. Clair Pipelines was required to fulfill those conditions during the construction and installation of the pipeline.

The pipeline crossing was successfully completed on 28 October 1989, with no adverse environmental effects being generated.

Tolls and Tariffs

North Canadian Oils Limited - Access to Foothills Pipeline - MH-2-88

In an application dated 17 August 1988, North Canadian Oils requested that the Board issue an order requiring Foothills to provide firm service to it on the Foothills pipeline system in Saskatchewan. North Canadian Oils required the capacity on the Foothills system in order to complete the arrangements for the transportation of 1.4 million cubic metres per day (50 million cubic feet per day) of natural gas to markets in the central United States.

The Board held a public hearing commencing in Calgary on 13 February 1989 and ending in Ottawa on 23 February, and released its decision approving the application on 10 April. The Reasons for Decision were issued in July and included decisions on other aspects of Foothills' tariff, including pipeline access criteria and procedures for allocating firm capacity.

TransCanada PipeLines Limited - 1988 Tolls - RH-1-88

The public hearing on TransCanada's application for new tolls for 1988 was held in two phases. Phase I dealt with toll design and tariff issues and Phase II dealt with cost of service issues and any remaining tariff matters.

Phase I of the hearing began on 16 May 1988 in Ottawa and ended on 13 September, for a total of 54 sitting days. The Board released its Reasons for Decision on 5 January 1989. In its decision, effective 1 November 1989, the Board lifted its prohibition on "self-displacement", that is, the transportation of

any gas purchased by distributors to displace gas they were taking previously from TransCanada.

Phase II of the hearing began on 9 January 1989 in Calgary and continued in Ottawa on 30 January. It ended on 11 April in Ottawa, for a total of 51 sitting days. Phase II dealt with rate of return, rate base, and cost of service matters for 1988 and 1989, as well as various toll design and tariff issues.

The Board issued its Reasons for Decision on 2 August 1989, establishing the new tolls TransCanada may charge for the transportation of gas to central and eastern Canada as well as to export markets. The new tolls were 11 percent lower than the tolls requested by the company.

The Board denied TransCanada's request to increase the equity component of its capital structure from 30 to 32.5 percent. It approved rates of return on equity of 13.25 percent for 1988 and 13.75 percent for 1989. The 1987 approved rate was 13.25 percent. The Board also decided not to implement a capacity brokering scheme at this time, but will allow assignments at a discount provided that the toll approved by the Board is paid to TransCanada. Finally, the Board asked TransCanada to submit revised queuing procedures to deal with shippers requesting new capacity. The revised procedures were received in early December and forwarded to interested parties for comments. The comments received are under review.

Phase II also dealt with two other applications, one by Northridge Petroleum Marketing Inc., dated 12 December 1988, the other by Union Gas Limited, dated 23 January 1989. The Northridge application requested the Board to issue orders to provide access to the TransCanada pipeline system for gas to be transported to southwestern Ontario via the Great Lakes system. Union Gas requested the Board to direct TransCanada, effective 1 February 1989, to receive, transport and deliver natural gas for Union Gas on the same terms and conditions as contracts currently in effect. On 18 April 1989, the Board issued its decision approving the Northridge application. Union Gas withdrew its application on 20 June 1989.

Westcoast Energy Inc. - 1989/90 Tolls- RH-1-89 / RH-2-89

On 9 January 1989, the Board advised Westcoast and interested parties that the Board had capped Westcoast's 1989 revenue requirement at \$274 million. This amount was \$1 million lower than that forecast by the company for 1989, and reflected a cost of common equity at the previously approved level of 13.75 percent. This innovative approach avoided the need for an expensive and lengthy hearing into the company's 1989 cost

of service by making a formal review of Westcoast's toll design and tariffs for 1989 unnecessary.

On 23 March 1989 the Board announced that the examination of Westcoast's tolls for 1990 would be conducted in two separate hearings.

The Phase I (RH-1-89) hearing considered toll design and tariff matters, including capacity allocation and self-displacement. The Phase I public hearing began on 12 June 1989 in Vancouver and ended on 18 July in Ottawa, a total of 17 sitting days.

During the course of the hearing, on 5 July, the Board issued its decision on the method of allocating the capacity which will become available on Westcoast's pipeline as a result of the expiry of long-standing gas sales contracts with domestic and export customers. The Board also rendered decisions on queuing procedures, including the granting of renewal rights, and self-displacement, rescinding its earlier prohibition of the latter.

In a second decision, issued on 4 August, the Board denied a proposal by Westcoast to provide service at a promotional toll level to the Vancouver Island Pipeline Project.

The Board issued its Reasons for Decision on 12 October 1989, providing both reasons for its earlier decisions and decisions on all other issues examined during Phase I of the hearing, including the design of interruptible, processing and transportation storage tolls, and the allocation of interruptible capacity.

The Phase II (RH-2-89) hearing was held in Vancouver from 11 to 24 October, with final argument in Ottawa on 31 October and 1 November. During this hearing, the Board directed Westcoast to set final tolls for the stub period 1 November 1989 to 31 December 1989. This decision avoided the necessity for interim tolls in 1989 and had the desirable attribute of producing certainty in the tolls for this period. As a result, in the Phase II hearing the Board considered Westcoast's rate base, cost of service, and rate of return for the 1990 test year only.

On 19 December, the Board issued its decision which allows Westcoast to establish new tolls for the transportation of natural gas for the 1990 test year. The Board issued its decision without reasons in order to avoid having to establish interim tolls effective 1 January 1990. The Reasons for Decision will be released early in 1990.

As part of its decision, the Board approved a rate of return on equity of 13.25 percent on a common equity component of

35 percent. The approved rate of return on equity is a reduction of 50 basis points from the previously approved rate. The Board expects the final tolls to be slightly lower than those currently in place.

On 22 December 1989, Westcoast requested that the Board review and amend a portion of its decision to rectify an error and to keep the company whole. On 9 January 1990, the Board issued an amending order and directed Westcoast to file new tolls with the Board by 15 January 1990.

During 1989, the Board received and considered a number of applications to review its decisions on Westcoast's tolls.

On 1 September, Pacific Coast Energy Inc. applied for a review of the decision relating to a proposal by Westcoast to provide service at a promotional toll level to the Vancouver Island Pipeline Project. On 13 September, the British Columbia Ministry of Energy, Mines and Resources also applied for a review and rehearing of the Board's decision. After considering the applications of Pacific Coast Energy and the B.C. Ministry, the comments of interested parties on whether the Board should conduct a review, and the applicants' reply comments, the Board decided on 1 November to deny the applications. The Board was not persuaded that the grounds for review cited in the applications raised a doubt as to the correctness of the decision rendered by the Board on 4 August.

On 29 November 1989, the Independent Petroleum Association of Canada (IPAC) filed an application, requesting the Board to review its decision respecting Westcoast's interruptible service tolls. IPAC claims the tolls were set at too high a level in view of facts which became available subsequent to the conclusion of the hearing. The Board decided on 15 December that a review of the decision was warranted and requested comments from interested parties prior to issuing a final decision.

BC Gas Inc. - Upstream and Downstream Diversion Complaint

BC Gas filed a complaint on 6 December 1989 against Westcoast Energy Inc. for refusing to permit BC Gas (Lower Mainland Division and Island Division) to divert system sales gas to upstream and downstream delivery points in the Westcoast system. On 21 December 1989 the Board asked for comments from interested parties before ruling on the complaint.

TransCanada PipeLines Limited - 1990 Tolls - RH-3-89

In an application dated 26 July, as amended, TransCanada applied for new tolls effective 1 January 1990.

The hearing began on 27 November in Ottawa and ended on 14 December.

At the hearing the Board examined cost of service, rate base, and rate of return. The hearing did not include an examination of the toll design or tariff matters except for the throughput forecast.

The requested new tolls would increase the average toll for firm transportation by about 10 percent.

TransCanada requested a 6.7-percent increase in its total revenue requirement, from \$932 million to \$994 million and a 20-percent increase in its rate base, from \$2.5 to \$3.0 billion.

TransCanada also requested an increase in its return on common equity from 13.75 percent to 14.25 percent.

The Board expects to release its decision in this proceeding early in 1990.

Interprovincial Pipe Line Company - Toll Design Study - RHW-1-89

On 28 June 1988, Interprovincial filed a study on the design of its tolls in compliance with the Board's Reasons for Decision RH-4-86 dated June 1987.

The Board's report on the study was issued in January 1990. The report contains decisions on a number of toll design issues including the appropriate methodology for determining surcharges for medium and heavy crude oils, refined petroleum products and natural gas liquids.

Inquiries

Interprovincial Pipe Line Company - Camrose, Alberta Accident - OHW-1-89

In late 1986, the Board commenced a review of its decision to adopt recommendation 5.9 made by the Board's panel investigating a fatal accident in 1985 on Interprovincial's pipeline near Camrose, Alberta. The recommendation required pipeline companies under the Board's jurisdiction to remove certain welds and to check the soundness of a sample of other welds.

In 1988, the Board agreed with a two-phase process of review suggested by industry.

The first phase consisted of a program of inspection or sampling with the intent of gathering evidence for the review.

Submissions were received from five companies: Dome Petroleum Ltd. (now "Amoco Canada Resources Limited"), Interprovincial Pipe Line Company, Petroleum Transmission Company, Trans Mountain Pipe Line Company Ltd., and Trans-Northern Pipelines Inc.

The second phase consists of a review of the recommendation in view of the submissions filed. Interested parties were requested to provide their comments on the submissions; the parties' comments are currently under review.

In a related matter, the Board invited industry to submit comments on the eleven other recommendations made in the inquiry panel's report. On 22 January, 14 April and 22 July 1988, and 16 February 1989, the Board made a number of decisions in respect of the recommendations and approved corresponding amendments to the *Onshore Pipeline Regulations*.

Other Board Activities

Oil

In 1989, 150 orders were issued for the export of crude oil and petroleum products. The Board receives monthly data from the industry on export volumes and prices for crude oil and petroleum products. The statistics are compiled and analysed, and consolidated reports are issued to the industry and other interested parties. Annual reports for crude oil and petroleum products covering export activities are published for the year.

Board staff issues, each quarter, a short-term primary demand forecast for main petroleum products in Canada by region. This demand is compared with the industry's short-term supply forecast, which is provided to the Board on a regular basis. A short-term supply and demand balance is also issued on a quarterly basis for crude oil and main petroleum products.

Natural Gas

The Board approved 151 short-term natural gas export and import orders in 1989. It also approved ten new licences and three licence amendments during the year (see Gas Appendices 4 and 12).

During 1989, the Board ensured that natural gas export transactions complied with licence terms and with approved contractual arrangements. It collected and published monthly

data on export prices, sales, and associated transportation costs which were used by a committee of officials of federal and producing-province governments to assess export prices against domestic prices.

The Board also published an update of its assessment of domestic natural gas markets (see *Energy Studies*).

Propane and Butanes

During 1989, the Board continued to monitor exports of propane and butanes. In this regard, the Board authorized 47 export orders for propane and 42 orders for butanes. Companies submit monthly data to the Board on exports, including prices and volumes. In addition, companies provide information on their supply and disposition of these products. The data are analysed and aggregated reports are provided to the industry and other interested parties.

Ethane

For purposes of export regulation, ethane is subject to the same criteria as natural gas. One order was issued for the export of ethane during 1989.

Electricity

During 1989, the Board continued to monitor electricity exports to ensure that transactions complied with licence conditions previously approved by the Board. It also issued one new export licence to Hydro-Québec and 17 orders for short-term (up to 36 months) exports. In addition, the Board also issued two exemption orders relating to international power lines and amended the conditions of two licences and two export orders. As part of the monitoring function, data on export volumes and revenues are received from each exporter and compiled into a monthly report which is issued to exporting utilities, government departments and other interested parties. A detailed list of the quantities exported and the associated revenues along with a list of the licences and orders issued in 1989 can be found in the Electricity Appendices at the back of this report.

Interprovincial Trade in Electricity

At the request of the Minister of Energy, Mines and Resources, the Board initiated a study to identify and examine the measures that could be developed to:

- enhance interprovincial trade in electricity;

-
- encourage greater co-operation between electrical utilities; and,
 - enable buyers and sellers of electricity to have commercial access to available transmission capacity through intervening provinces for wheeling purposes. Wheeling is the transmission of power belonging to one utility through the circuits of another utility for delivery to either a third party or back to the originating system.

The Board's review is proceeding on two tracks; the first is concerned with inter-utility co-operation, the second with wheeling and transmission access. The review will seek the active participation of provincial governments, utilities and other interested parties.

Other Electrical Activities

During the year the Board continued to keep the Minister of Energy, Mines, and Resources advised of the status of electricity exports. The Board also continued to consult with and contribute to other government departments and industry groups in both Canada and the United States which coordinate the operation of electric power utilities throughout North America.

The Board provided the Department of Indian and Northern Affairs with technical assistance in the review of a proposal by Manitoba Hydro to supply power from its system to Indian settlements in northern Manitoba.

Staff continued to work and consult with industry on the Board's CANEBEX-5 computer model, which assesses the benefits from economy energy transactions for among up to five power systems. Economy energy is energy sold by one power system to another to effect a saving in the cost of generation when the receiving party has adequate capability to supply the loads on its own system. Board staff is considering the use of the CANEBEX-5 program to identify possible benefits from wheeling as part of its review of interprovincial trade in electricity.

Energy Studies

Natural Gas Market Assessment 1989-1991

In December 1989 the Board issued its second Natural Gas Market Assessment Report.

The report updates an assessment of the functioning of the Canadian natural gas market and a review of the short-term outlook for the supply and demand for Canadian natural gas

first published in 1988. It is the second of a series which the Board will publish from time to time as part of its ongoing monitoring responsibilities. Publication of these studies was announced in the July 1987 decision in which the Board adopted the Market-Based Gas Export Procedure for assessing natural gas export applications.

The report examines in detail the structure and functioning of the Canadian natural gas market, focussing on developments since October 1988, and provides forecasts to 1991.

As a result of its review, the Board came to the following conclusions:

- Some, but not all, of the constraints to competition in the market have been eliminated in the past year.
 - Producing province removal permit regulation is under review, but Alberta continued to deny removal permits for direct sales to what it considers to be other provinces' "core" markets;
 - Sales and transportation service for the eastern Canadian distributors are now provided under separate contracts, and the sales contracts allow distributors limited flexibility to displace gas being purchased from Western Gas Marketing with gas purchased from others;
 - Manitoba, Ontario and Quebec regulators have accepted the implications of these contracts for the prices paid by end-users through to November 1990, providing some price stability during that period;
 - The number and volume of direct sales have increased, and prices for Western Gas Marketing sales and for direct one-year firm purchases have converged, indicating that there is increased competition between Western Gas Marketing and direct sales;
 - The Board has opened access to pipeline transportation service for direct shippers and has established procedures for those queuing for space with a view to ensuring fair treatment of all shippers; and
 - A growing number of direct purchasers have access to transportation service on distribution systems, although the policy in Quebec has effectively discouraged transportation of directly purchased gas other than that involved in buy/sell agreements with Quebec distributors.

-
- Domestic prices remained, on average, below export prices, indicating that Canadians are having no difficulty in obtaining gas supplies on at least as favourable a basis as export customers.
 - Domestic natural gas sales are expected to grow in 1990 and 1991, but at a slower pace than over the last two years, reflecting expected slower growth in economic activity.
 - Export sales are expected to continue to grow, exceeding previous levels in each year to 1991. Imports to southern Ontario, while small, are also expected to increase.
 - Despite the expected recovery of overall drilling activity, small declines are expected in remaining reserves in western Canada in each year to 1991 as a result of high gas demand.
 - The excess of productive capacity relative to demand is expected to continue declining in the forecast period, with supply and demand coming into approximate balance by 1991.
 - Despite new pipeline capacity installed or under construction, increased domestic and export demand for firm carriage will result in very high pipeline capacity utilization, and interruptible transportation will continue to be in very limited supply.

The report concludes that, although some market constraints still exist, progress continued to be made toward increased competition over the past year. Gas demand is high and continues to grow both domestically and in the export market. Both productive capacity and transportation capacity (including storage facilities) are expected to be adequate to meet the demands placed upon them over the outlook period to 1991.

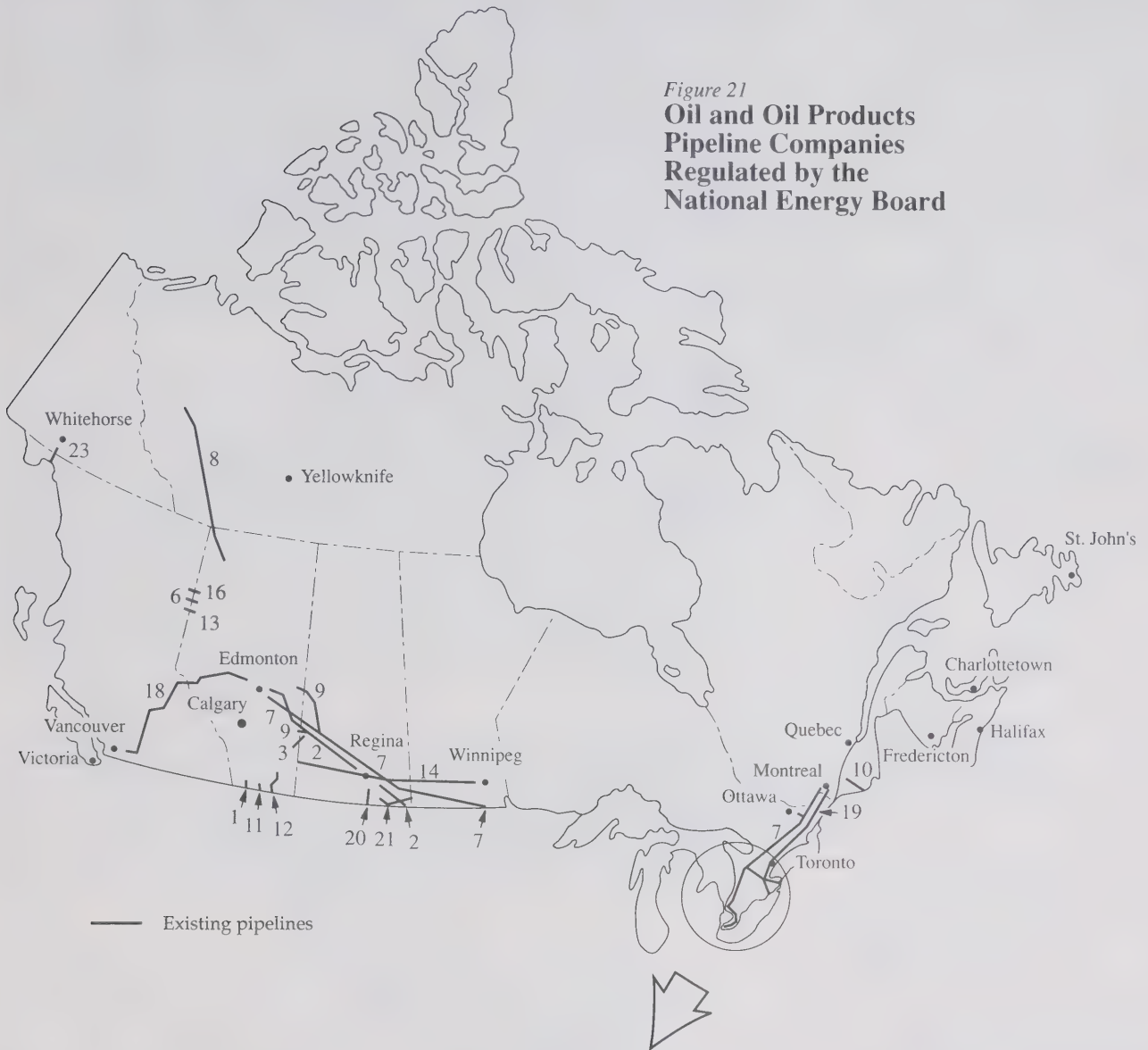
Natural gas prices are expected to be stable over the period to 1991, although there could be some price fluctuations for certain categories of short-term transactions.

Pipeline Activities

The Board regulates 49 gas, oil and products pipeline companies. These pipeline systems are shown in Figures 21 and 22.

All new pipeline facilities under the Board's jurisdiction must be authorized by the Board prior to construction and operation. The Board is responsible for monitoring the

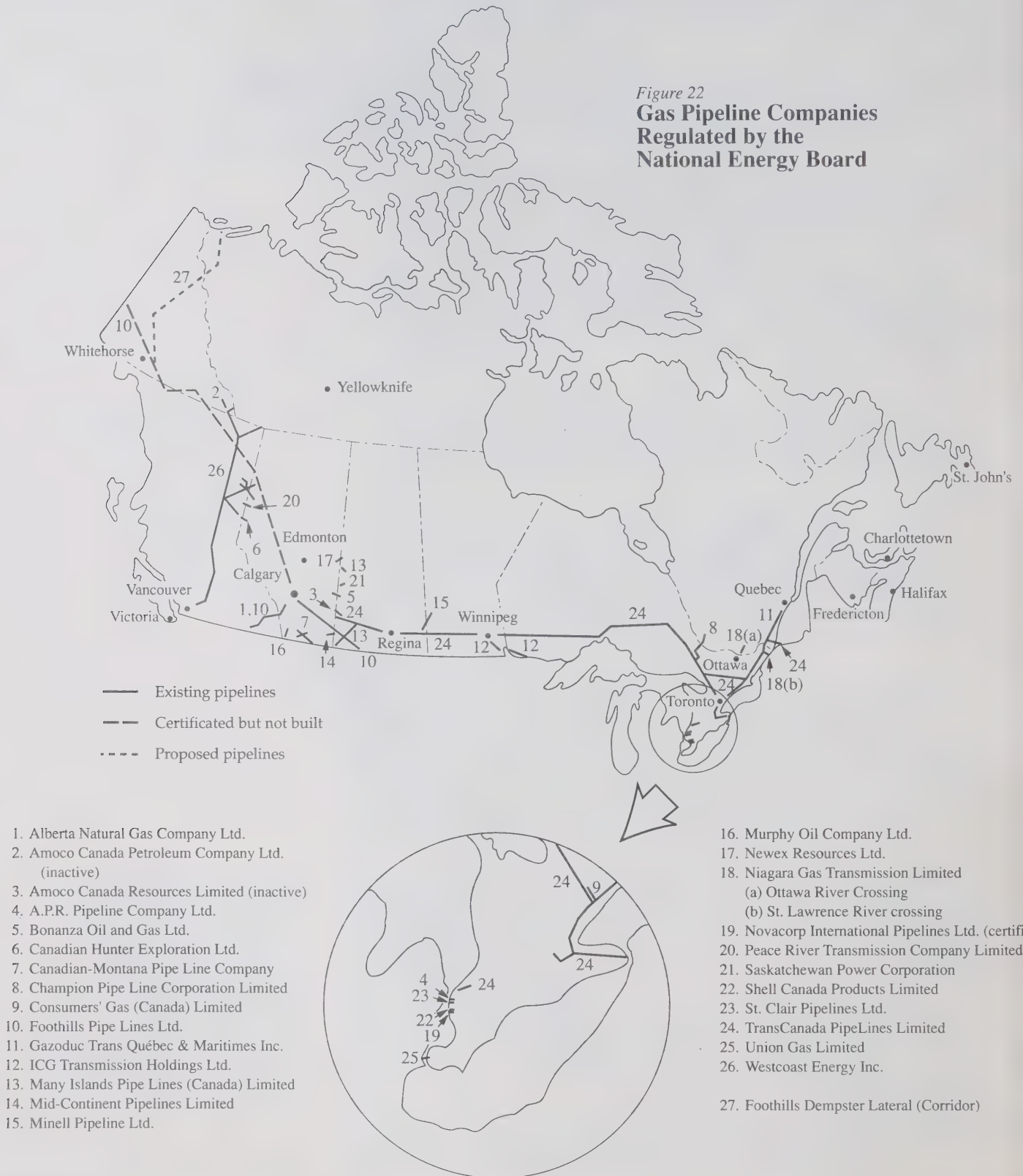
Figure 21
**Oil and Oil Products
 Pipeline Companies
 Regulated by the
 National Energy Board**



1. Aurora Pipe Line Company
2. Cochin Pipe Lines Ltd.
3. Dome Kerrobert Pipeline Ltd. and
Pan Canadian Kerrobert Ltd.
4. Dome NGL Pipeline Ltd.
5. Dome NGL Pipeline Ltd.
Amoco Canada Petroleum Company Ltd.
6. Esso Resources Canada Limited
7. Interprovincial Pipeline Company,
a division of Interhome Energy Inc.
8. Interprovincial Pipe Line (NW) Ltd.
9. Manito Pipelines Ltd.
10. Montreal Pipe Line Limited
11. Mont Resources Limited

12. Murphy Oil Company Ltd.
13. Northwest Transmission Company Limited
14. Petroleum Transmission Company
15. Polysar Hydrocarbons Limited
16. Pouce Coupé Pipelines Ltd.
17. Sun Pipe Line Company
18. Trans Mountain Pipe Line Company Ltd.
19. Trans-Northern Pipelines Inc.
20. Wascana Pipe Line Ltd.
21. Westspur Pipe Line Company (1985) Inc.
22. Windsor Storage Facility Joint Venture
23. Yukon Pipelines Limited

Figure 22
**Gas Pipeline Companies
 Regulated by the
 National Energy Board**



construction, operation and abandonment of pipeline facilities as well as protection of the environment to ensure compliance with the Board's safety and environmental regulations and any specific conditions of the approving order or certificate. In addition, the Board reviews construction and operation costs to ensure that tollpayers receive cost-efficient service. Certificates are issued for new pipelines longer than 40 kilometres, if they are approved by the Board after it holds a public hearing, as required by the *National Energy Board Act*. All certificates must be approved by the Governor in Council. The orders and certificates issued during 1989 approving new pipeline facilities are listed in Oil and Gas Appendices 1, 2 and 3.

The Board's *Onshore Pipeline Regulations* came into effect on 1 September 1988, replacing the *Oil Pipeline* and *Gas Pipeline Regulations*. The new regulations incorporate, by reference, the technical requirements for the design, construction and operation of oil and gas pipelines, as set out in the Canadian Standards Association (CSA) pipeline standards. To ensure that its views are represented and taken into consideration in the development of new or amended requirements for the standards, the Board maintains a high level of participation in CSA activities, with representation on some 25 committees, subcommittees and task forces.

In 1990, the *Onshore Pipeline Regulations* will be amended to reflect the findings of the Board's review of the recommendations arising from an inquiry into an incident on Interprovincial's pipeline system near Camrose, Alberta. Further amendments are expected in order to accommodate gas plant facilities.

During the past year, the Board's inspectors visited five companies under the Board's jurisdiction and conducted routine inspections of 21 compressor and pumping facilities. These inspections were directed at the evaluation of the operational, maintenance and safety practices of the pipeline companies and included the enforcement of Part II of the *Canada Labour Code* which focusses on occupational safety and health.

The Board also undertook construction inspections at 80 sites during 1989. These inspections were used to monitor compliance with the *Onshore Pipeline Regulations* as well as specific conditions contained in the orders and certificates issued by the Board. As a component of these inspection duties, the enforcement of Part II (previously Part IV) of the *Canada Labour Code* was carried out in so far as it applies to the pipeline company's employees on the construction site.

Compliance Monitoring

In its Regulatory Impact Analysis Statement respecting the *Onshore Pipeline Regulations*, the Board indicated its intent to use auditing of safety management practices as a compliance monitoring technique. During 1989, the Board proceeded with the development of procedures which would define the audit system the Board will implement. The Board has undertaken a trial audit of a pipeline company under its jurisdiction to evaluate its progress in this regard and the results were very encouraging. The lessons learned have been used to refine the system. The Board expects to undertake further audits of various pipeline companies in 1990.

Northern Pipeline Agency

In preparation for, and during the construction of, a new compressor station on the pipeline system of Foothills Pipe Lines Ltd., the Northern Pipeline Agency relied on Board staff for technical advice to assist it in carrying out its responsibilities under the *Northern Pipeline Act*.

Pipeline Incidents

The Board requires detailed reports of all incidents involving personal injury or fatality, pipeline malfunctions such as leaks, breaks, fires, or explosions, or any other event which results in a loss of service of a pipeline under its jurisdiction. The Board conducts public inquiries, if appropriate, to ascertain the cause of the incident and, when necessary, to establish specific measures to prevent a recurrence of that type of incident. These reports and inquiries are considered when reviewing pipeline safety, operational standards and regulatory requirements.

If a pipeline is damaged, the Board verifies that steps are taken to contain spills of hydrocarbons, to provide protection to the public and to property, and to repair the damaged pipeline and to return it to full service as soon as possible. The Board continues its surveillance of the site to ensure the effectiveness of the company's environmental rehabilitation program.

During 1989, the Board conducted various field inspections of pipeline incident locations to monitor the implementation of established emergency, safety and environmental protection procedures.

Table 6 shows the causes of pipeline incidents over the last five-year period. A total of 48 incidents occurred in 1989. Two fatalities were reported during the year.

Table 6
Causes of Pipeline Incidents 1984-1989

	1985	1986	1987	1988	1989
Defective Welds	5	0	3	3	5
Material Failures	4	5	4	7	12
Third Party Damage	6	3	8	6	2
Corrosion	5	10	8	4	3
Other*	11	10	15	18	26
Total	31	28	38	38	48

* includes workplace and construction accidents, operator error, earth movements, and other miscellaneous causes.

The apparent increase in pipeline incidents reported in 1989 is due to the introduction of an expanded definition of reportable incidents contained in the *Onshore Pipeline Regulations*, which came into effect on 1 September 1988. Previously, incidents, such as deaths or injuries requiring hospitalization, which occurred during construction were not defined as reportable incidents. Also, any discharge of toxic substances into the environment which occurs during the construction, operation or abandonment of a pipeline must now be reported to the Board.

On 20 June 1989, Parliament passed Bill C-2, an Act to establish the Canadian Transportation Accident and Safety Board and, on 29 June 1989, Bill C-2 was given Royal Assent by the Senate. A date for the coming into force of the Act by order of the Governor in Council has not been fixed as of yet. Once the Canadian Transportation Accident and Safety Board is established, it will have jurisdiction to conduct independent investigations and public inquiries, if necessary, into any commodity pipeline occurrence within the legislative authority of Parliament. The object of these investigations or inquiries will be to identify safety deficiencies and make recommendations in order to eliminate or reduce them. The Canadian Transportation Accident and Safety Board will have concurrent jurisdiction along with the National Energy Board to investigate and report on all pipeline incidents. The concurrent jurisdiction is complementary, as the bill provides that, where the investigation of a transportation occurrence involves both the Canadian Transportation Accident and Safety Board and the National Energy Board, the two parties shall take all reasonable measures to ensure that their activities with respect to the transportation occurrence are coordinated.

Approvals

Westcoast Energy Inc. received approval for and constructed the Aitken Creek pipeline loop located in the Peace River area of northern British Columbia. This 31-kilometre loop, estimated to cost \$8.1 million, is required to accommodate additional volumes of gas delivered out of Unocal's storage at Aitken Creek that is related to the Laprise Offload Project approved by the Board in 1988, which would allow for the diversion of raw gas from the Taylor complex to the Fort Nelson mainline.

The Board also authorized Westcoast to build the Pine and Commotion pipelines located in the Pine River area of northern British Columbia. These 18 kilometres of new gathering lines are expected to cost \$3.1 million. Construction of these facilities was deferred pending a review by all parties of the applicable tolls. The Board also approved an upgrade of the control instrumentation at the McMahon gas plant which is expected to cost \$5.8 million.

During the year, the Board received and considered a number of applications from TransCanada PipeLines Limited to expand its pipeline system. The expansions would allow TransCanada to increase its deliveries of natural gas to its eastern Canadian and American markets. These applications are discussed in *Hearings and Inquiries*.

TransCanada received the Board's approval to purchase Union Gas' recently built 38-kilometre Kirkwall Line. This line, which links the Union Gas transmission system in southern Ontario with TransCanada's Niagara Line, will be purchased for \$18 million. Actual transfer of ownership is expected to occur in early 1990. Modifications to the line to integrate it with the TransCanada system have been approved and will cost an additional \$2 million.

Trans Mountain Pipe Line Company Ltd. received approval to upgrade the containment dykes for its oil tankage at the Burnaby Terminal, at a cost of about \$6 million. The project involved dyke enlargements as well as structural improvements to meet current seismic design requirements.

In 1989, Interprovincial Pipe Line Company undertook important modifications at its Edmonton terminal. The project, with an estimated cost of \$12 million, included a rework of the manifold system and the installation of new meters and an electric substation.

Pouce Coupé Pipe Line Ltd. received approval to construct a 26-kilometre pipeline extending from Dawson Creek, British

Columbia to a point southeast of Bay Tree, Alberta. The pipeline, estimated to cost about \$2.8 million and designed to transport crude oil and high vapour pressure products, connects the facilities built by Canadian Hunter Exploration Ltd. and Norcen Energy Resources Ltd. to the Peace Pipe Line Ltd. system.

Canadian Hunter Exploration Ltd. received approval to build a 2.3-kilometre pipeline from its gathering system terminal at Noel, British Columbia to the system of the NOVA Corporation of Alberta. The pipeline is designed to transport sweet gas to the system.

The Board authorized Bonanza Oil and Gas Ltd. to build a 5.4-kilometre pipeline across the Saskatchewan/Alberta border to carry natural gas from Bonanza's gas wells in Saskatchewan to Petrolia Oil and Gas Ltd.'s gathering line in Alberta. After processing at the Petrolia plant, the gas will be transmitted back into Saskatchewan via the TransGas Ltd. pipeline.

In addition, the Board approved various other applications dealing with receipt and delivery facilities, pipeline replacements and modifications to existing pipeline facilities.

Environmental Matters

Environmental matters continued to be at the forefront of Canadian public concern in 1989. In its role of protecting the public interest, the Board continued to consider the environmental implications of energy projects it regulates and also introduced initiatives to enhance public notification requirements for projects which may have environmental or social effects.

Companies planning to construct and operate pipelines or power lines are required to minimize negative impacts and avoid extensive or irreversible damage to the land to be crossed. To ensure such action, the Board examines all phases of project planning, construction and operation.

The environmental impact statement submitted by the applicant as part of a project application is the important first step of the review process. The statement describes the proposed pipeline or power line corridor in its existing state, the anticipated impact of the project on that corridor, and the procedures to be implemented by the company to mitigate those impacts. The company's environmental impact statement is examined for completeness and accuracy in evaluating and assessing the impacts of the proposed construction on the environment, and the corresponding measures to be implemented to mitigate those impacts.

In addition, the Board ensures that, where negative effects on the environment cannot be avoided, companies implement the proper mitigative measures during the construction and rehabilitation of the affected area. Where there are identified potential impacts on the environment, the Board requires the development of an environmental issues list which is used as a method of tracking those impacts during the construction and operation of a project. The list complements the environmental impact assessment process and provides a focus for environmental protection activity during all phases of a project. The environmental issues concept has evolved to become a useful addition to the environmental protection process at the Board.

The Board inspects pipeline and power line construction project rights-of-way as part of its environmental protection program to ensure compliance with the companies' environmental protection procedures. Companies constructing energy transmission facilities also must submit post-construction monitoring reports which document the recovery of the rights-of-way following construction and update the environmental issues lists.

Furthermore, the Board is responsible for ensuring that pipelines are operated and maintained in an environmentally acceptable manner. The Board's activities include periodic inspections to monitor the condition of rights-of-way and inspections of pipeline incident sites to ensure that environmental protection, restoration and maintenance measures are fully implemented. The Board conducts inspections of pipeline pump and compressor stations, which include noise surveys and inspections of hazardous materials handling and storage. In addition, the Board monitors the operation of several gas plants operated by Westcoast Energy Inc. with particular emphasis on ensuring the release of safe levels of sulphur emissions and the discharge of appropriately treated effluents from waste-water ponds.

In 1989, the Board carried out several environmental inspections. They included surveillance of the 1989 pipeline construction carried out on the TransCanada PipeLine Limited system in Saskatchewan, Manitoba, Ontario and Quebec; the St. Clair Pipelines Ltd. crossing of the St. Clair River south of Sarnia; and construction by Westcoast Energy Inc. associated with the Laprise Off-Load Project, north of Fort St. John, British Columbia. The Board found that the projects were constructed in an environmentally acceptable manner, using proper mitigative and restorative techniques. Due to the public interest which led the Board to review the environmental conditions in the certificate authorizing the St. Clair Pipelines project, the

Board decided to implement full-time environmental inspection for the duration of construction. The mitigative measures and monitoring program carried out by St. Clair Pipelines were part of the environmental protection requirements set down by the Board. The companies will be monitoring their rights-of-way next summer, submitting environmental monitoring reports in December 1990, and implementing remedial action where it is deemed necessary.

Board inspectors also monitored the rights-of-way of recently completed projects. They included TransCanada's 1988 looping projects on the Niagara Line, and the Dawn and St. Mathieu extensions in Ontario and Quebec; and Westcoast Energy Inc.'s Umbach Line, North Jedney Extension and Redwillow Line in northeastern British Columbia. The annual overflight inspection of the Interprovincial Pipe Line (NW) Ltd. pipeline in the Northwest Territories and northern Alberta was conducted during the summer. The recovery of the rights-of-way inspected in 1989 continues satisfactorily with few environmental impacts resulting from the construction projects. Steep slopes and unstable soils have hindered Westcoast's rehabilitation efforts in northeastern British Columbia, an area particularly susceptible to terrain disturbance. As a result, Westcoast has had to be especially diligent in applying remedial measures in order to prevent further erosion and stabilization concerns. The companies' ongoing monitoring and surveillance programs help to ensure that any future site-specific concerns will be addressed.

Under its periodic operational inspection program, the Board examined the Interprovincial Pipe Line Company system from Sarnia to Montreal, the Trans-Northern Pipelines Inc. system from Nanticoke to Montreal, and the Foothills Pipe Lines Ltd. system in Alberta and Saskatchewan. As well, two portions of the TransCanada system were inspected, including the condition of the right-of-way in Saskatchewan and Manitoba, and the restorative work associated with the Bell Canada fibre optic cable system on TransCanada's right-of-way in northern Ontario. All the rights-of-way were found to be generally in good condition with no significant differences in vegetative or crop cover from that of the adjacent lands. The restoration efforts have been effective along the right-of-way in northern Ontario and only a few areas of concern require further work.

As part of its program of periodic facilities inspections, the Board monitored a loading of heavy crude at the Westridge oil loading terminal of Trans Mountain Pipe Line Company Ltd. Trans Mountain has developed loading procedures for sour crude oil which are designed to minimize odour release.

During the loading, no odours were detected in the vicinity of the vessel. Because no odour emission problems occurred during that loading, the Board, in its judgement, saw no need to monitor other heavy crude oil loadings at Westridge.

The inspection of rehabilitation measures undertaken to restore incident sites affected by oil and products spills formed part of the Board's environmental monitoring program. During 1989, a total of 14 spill sites were assessed for rehabilitation and restoration. In Saskatchewan, six of the eight sites inspected were considered fully restored, five on the system of Westspur Pipe Line Company (1985) Inc. and one on the Wascana Pipe Line Ltd. system. On Interprovincial's pipeline system in Alberta, one site of a total of four was considered restored, with rehabilitation progressing slowly at the remaining three sites. Further monitoring will be required at two other Interprovincial incident sites, one in Ontario and the other in Quebec.

The Board continued its environmental program of collecting data on pump and compressor station noise emissions. Data gathering was completed for the TransCanada system in Ontario and has commenced at stations in Quebec and Saskatchewan.

In 1989, a program was initiated to ensure that polychlorinated biphenyl (PCB) wastes at all facilities regulated by the Board were being stored safely. PCBs are found in oil drained from electrical equipment that has been removed from service, not in the product being transported by the pipeline. Companies were required to provide inventories of PCBs in use and in storage at their facilities, and all 37 storage sites were inspected to ensure that they were in full compliance with the federal regulations on PCB storage. The Board will continue to update the PCB inventory on an annual basis and to inspect storage sites to ensure the continued protection of the environment and public safety.

Memorandum of Guidance on Early Public Notification

During 1989, a draft Memorandum of Guidance dealing with early public notification of proposed energy projects was sent for comment to all companies under the Board's jurisdiction, public interest groups and government agencies. The guidelines will ensure that public concerns are made known to the Board at an early stage and are considered and evaluated by applicants proposing energy projects which may have environmental or social effects.

Under the proposed guidelines, companies regulated by the Board which plan to build or expand their pipelines, export

electricity, or export from the west coast crude oil which might affect air quality must implement a public information program. Depending on the expected environmental or social impact of the proposed project, the public information program could vary from newspaper notices to a series of public meetings in affected communities.

The early public notification requirement will enable the companies to identify the affected parties and their respective concerns regarding a proposed pipeline or project. This will permit applicants to address and, where possible, resolve the concerns at an early stage in the planning process and to adopt appropriate procedures in their application.

The guidelines will provide interested parties with sufficient information to determine the degree to which they could be affected. The public will be given the opportunity, before the application is filed, to express its concerns to the applicant and to the Board. Companies will also be required to provide the public with adequate time to comment on the proposal and to ensure that expert staff are available to respond to any questions asked by the affected parties.

Public Notices

In the past, when an application was submitted to the Board and a hearing date was established, companies were required to publish newspaper notices providing general information with respect to the proposal. In keeping with the Board's initiative to supply the public with greater detail of an application before it, the Board has modified its publishing requirements for "Notices of Public Hearing". The revised Directions on Procedure require companies to provide each local publication with a plan at a sufficient scale to identify the location of the proposed general route. The new procedures also require that the notice identify the locations where the pipeline route sheets are available for public viewing. In this way, individuals can determine whether they would be affected by a project and whether they wish to intervene at the hearing.

Detailed Route Procedures

In 1989, the Board did not hold any detailed route hearings concerning the crossing of private lands by a pipeline or power line; however, the Board did exempt several projects from the detailed route procedures where new lands were required. In each case, the applicant demonstrated that options or easements had been obtained on all necessary lands.

However, the Board did have an application before it which included two pipeline routes, both requiring separate new

... there was no need for the Board to issue any third-party crossing approvals in 1989; in previous years the Board had issued an annual average of 800 orders approving pipeline crossings.

rights-of-way. Both projects were proposed by TransCanada as part of its application for new facilities in 1990.

The first project was the Gananoque Extension in Ontario. The application for the related gas exports was denied by the Board and TransCanada would be required to re-apply to the Board if it wishes to pursue this project. The second project was the Napierville Extension in Quebec. That proposal was approved by the Board subject to the condition that the related export licence is granted. The licence application is scheduled to be reviewed by the Board in March 1990 and, if approved, it is anticipated that a detailed route hearing will be scheduled in 1990.

Third Party Crossing Matters

In 1989, the Board completed its first full year under the new Pipeline Crossing Regulations. The regulations establish the conditions under which excavation and construction activities affecting pipelines can be conducted safely by third parties. According to one of the conditions of the regulations, excavators or utilities do not require leave of the Board if they obtain the permission of the pipeline company and accept any attached conditions. As a result of the effective application of the regulations, there was no need for the Board to issue any third-party crossing approvals in 1989; in previous years the Board had issued an annual average of 800 orders approving pipeline crossings.

As part of its mandate to monitor compliance with the regulations, the Board conducted 26 detailed investigations of third party violations which were reported by pipeline companies. A number of random field inspections were also carried out across Canada to monitor utility construction activities affecting pipelines. The principal objective of the detailed investigations is to prevent a recurrence of third party violations of the regulations, while the random inspections are designed to encourage safe construction practices near pipelines.

In order to promote safe excavation practices in the vicinity of pipelines and to inform the public of their responsibilities under the *Pipeline Crossing Regulations*, the Board made presentations to affected organizations and has met with various utilities and excavators across the country.

Financial Regulatory Matters

The Board is responsible, under Part IV of the *Act*, for ensuring that the transportation tolls charged by the pipelines under its

jurisdiction are just and reasonable and that there is no unjust discrimination.

The number of pipelines under the Board's jurisdiction during 1989 is a total of 49, of which 26 are gas transmission lines, and 23 are for the transportation or storage of oil and petroleum products.

For purposes of financial regulation, the pipelines are divided into two groups: Group 1 consists of the ten major pipeline companies and Group 2 encompasses the remaining smaller pipeline companies.

This grouping of the pipelines, which originated in 1986, was designed to reduce the degree of financial regulation imposed on the smaller pipelines, while continuing full financial regulation of the large pipelines in which the public has a much greater interest.

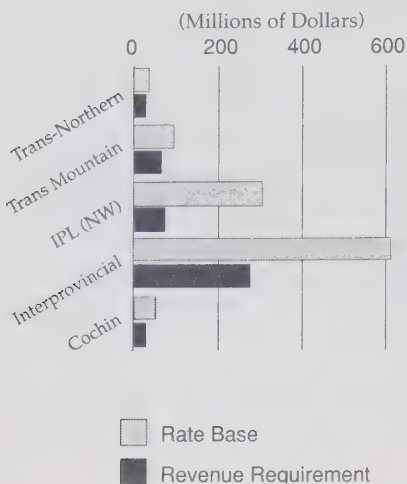
While the Board may undertake, on its own initiative, a review of the tolls of any company under its jurisdiction, the tolls of the Group 2 companies are normally reviewed only on receipt of a complaint. Otherwise, the monitoring of the Group 2 companies consists primarily of reviewing their annual financial performance.

The Group 1 companies are constantly monitored through review of quarterly surveillance reports filed by the companies and the periodic audit of their operations. These companies must receive Board approval for any increase in their tolls or amendments to their tariffs before implementation. Applications for toll adjustment can be reviewed by means of an oral public hearing, where the extent of the change and the degree of public interest warrant it. Other adjustments are conducted by means of written submissions.

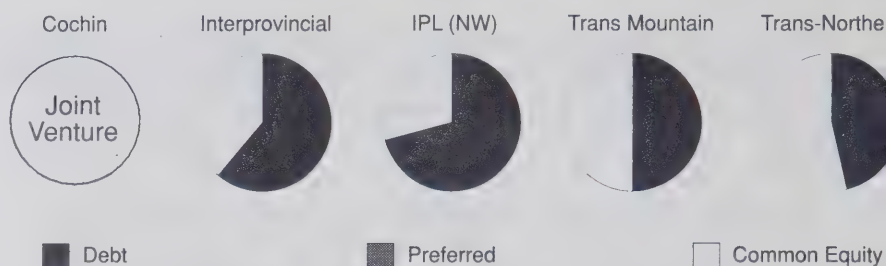
Within Group 1, there are, however, three pipeline companies, Alberta Natural Gas Company Ltd., Interprovincial Pipe Line (NW) Ltd. and Cochin Pipe Lines Ltd., which, since 1987, have had their tolls and tariffs regulated on a complaint basis only, to reduce the regulatory burden.

In July 1989, the Board received its first complaint regarding the tolls and tariffs of a Group 1 company regulated on a complaint basis, that company being Cochin Pipe Lines Ltd. After consultation with interested parties and the company, the Board resolved the complaint in October 1989.

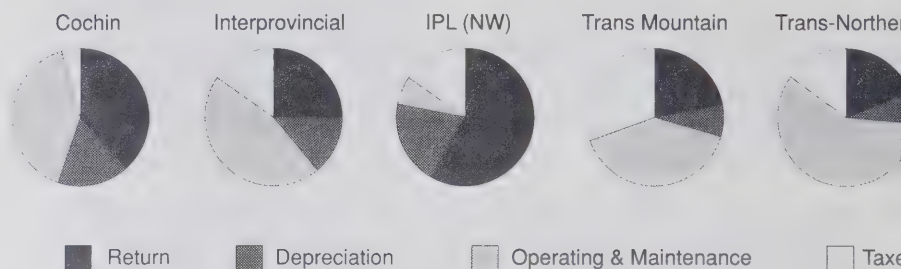
Figure 23
Group 1 Oil Pipelines
Rate Base and Revenue Requirement



Capitilization of Rate Base

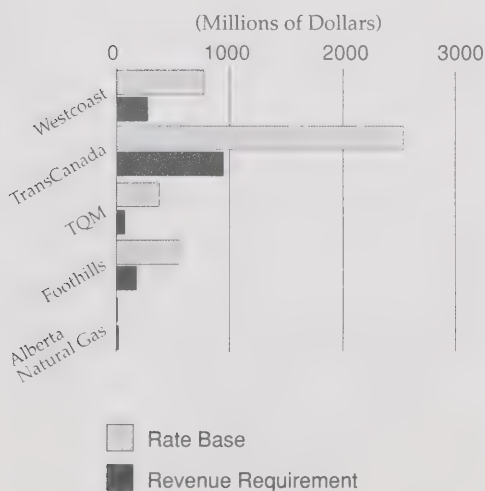


Components of Revenue Requirement

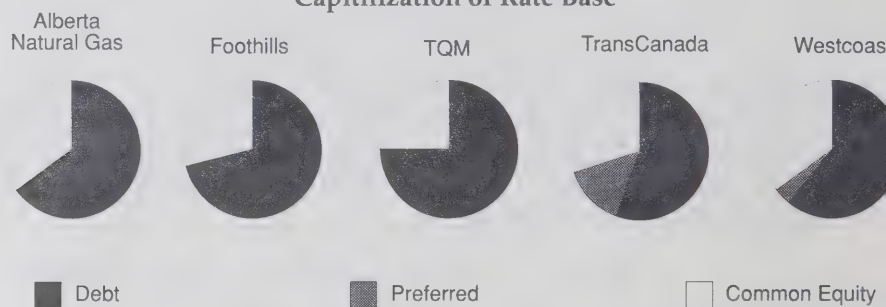


Reference: Financial Regulation Appendix 1

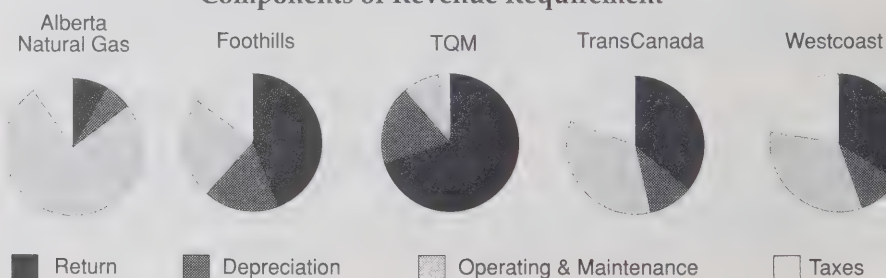
Figure 24
Group 1 Gas Pipelines
Rate Base and Revenue Requirement



Capitilization of Rate Base



Components of Revenue Requirement



Reference: Financial Regulation Appendix 2

Toll adjustments through public hearings are reported under *Hearings and Inquiries*.

A number of non-hearing toll adjustment proceedings took place in 1989, some having been initiated in 1988. Also, proceedings initiated late in 1989 will not be completed until early in the new year.

In March 1988, Trans-Northern Pipelines Inc. applied for a 5.5-percent increase in tolls. The Board reviewed the company's application and determined that an increase of only 0.8 percent was justified. New tolls became effective 1 April 1989.

For Trans Mountain Pipe Line Company Ltd., new tolls came into effect on 1 January 1989, following an application filed in October 1988. A further application for a toll adjustment was filed on 16 October 1989, because of a variance in throughput, and new tolls were approved on 16 November 1989. Meanwhile, on 30 October 1989, an application was filed applying for an adjustment of the company's tolls for 1990, based on anticipated increases in its cost of service. The Board expects to approve new tolls early in 1990.

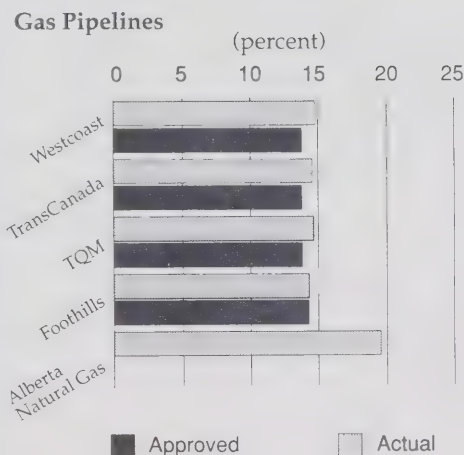
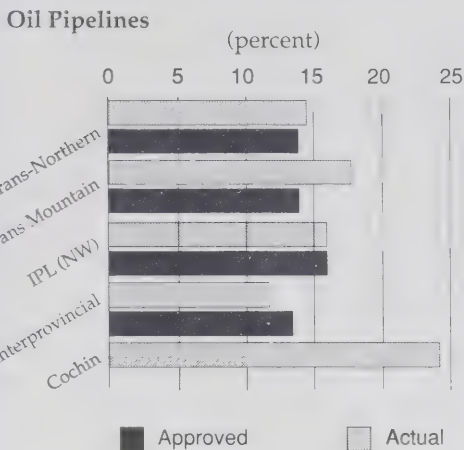
In September 1989, Foothills applied to the Board for a reduction in the depreciation rates applicable to its pipeline. Following receipt of comments from interested parties, the Board approved the revised depreciation rates, as applied for, effective 14 September 1989. The company filed amendments to its tariff reflecting the new depreciation rates.

In November 1989, Foothills applied to the Board for an order authorizing an amendment to the treatment of costs associated with the Crane Lake Meter station. This change, which related to the provision of firm service to North Canadian Oils Limited on Foothills (Sask)'s Zone 9, was approved by the Board with an effective date of 6 December 1989.

Also late in the year, Interprovincial Pipe Line Company applied for an adjustment of its tolls for 1990, based on anticipated increases in its cost of service. A request from the Independent Petroleum Association of Canada, that Interprovincial's toll adjustment procedures be reviewed and that Interprovincial's 1991 test year be examined in an oral public hearing, is also being examined by the Board.

The Board reviewed in 1989 the continued appropriateness of Alberta Natural Gas Company Ltd.'s existing gas transportation contracts, which are filed as tariffs with the Board. Specifically,

Figure 25
Group 1 Companies
Rate of Return on Common Equity



1989 Common Equity		
	Ratio	% Return
Oil Pipelines		
Cochin	N/A	24.22
Interprovincial	39	11.52
IPL (NW)	29	16.00
Trans Mountain	50	17.70
Trans-Northern	54	14.22
Gas Pipelines		
Alberta Natural Gas	35	18.41
Foothills	29	14.25
TQM	25	14.79
TransCanada	30	14.60
Westcoast	35	13.86

Reference: Financial Regulation Appendices

the Board was concerned that certain aspects of the tariffs were not consistent with the provision of open-access and the provision of transportation services on a non-discriminatory basis. Taking into account the comments of industry, the Board directed Alberta Natural Gas to review its gas transportation contracts in consultation with its shippers and to file a uniform tariff, covering all transportation services offered by the company, for the Board's approval in 1990.

Also during 1989, the Board reviewed Alberta Natural Gas' method of calculating its monthly cost of service for tariff and billing purposes. In December 1989, the Board directed the company to modify this method of calculation. This action will effectively reduce its rate of return on equity to 13.15 percent for 1990 from a forecast level of approximately 18 percent.

Since its inception, the Board has used regulatory audits as a means of verifying and monitoring the financial operations of the regulated companies. Section 129 of the *National Energy Board Act* is specific in its requirements that the companies under the Board's jurisdiction make their records available for inspection by representatives of the Board. During 1989, in response to concerns expressed by some pipeline companies regarding the Board's access to certain confidential corporate records, the Board undertook a review of the role of its financial regulatory audits. As a result, the Board re-affirmed the importance of these audits as a regulatory tool. In October 1989, the Board adopted a Financial Regulatory Audit Policy which includes a set of uniform and consistent audit terms of reference, objectives and guidelines to apply to the companies under its jurisdiction. Of particular interest is the Board's undertaking not to reveal any sensitive material on the public record, but to request a company to do so if and when it becomes necessary, thus providing the company with an opportunity to make its case before the Board for continued confidentiality. The audit terms of reference, objectives and guidelines were conveyed to the companies.

The 1989 financial information for the Group 1 companies is found in the Financial Regulation Appendices 1 and 2. These tables are the source for the information on rate base and revenue requirements illustrated in Figures 23 and 24, for the oil and gas pipelines, respectively. Figure 25 provides a comparison of the rates of return on common equity approved by the Board for each of the companies, with the actual rates earned.

Legal Actions

Cyanamid Canada Pipeline Inc.

On 6 April 1987, Cyanamid applied for a review of the Board's December 1986 decision that the Board had jurisdiction over a short pipeline to be constructed by Cyanamid from its plant at Welland, Ontario, to the TransCanada pipeline at Blackhorse Station. In view of a judgment in March 1987 of the Divisional Court of the Supreme Court of Ontario, which had confirmed the exclusive jurisdiction of the Ontario Energy Board over typical by-pass pipelines in Ontario such as Cyanamid's proposed facilities, Cyanamid also requested that the question of jurisdiction be referred to the Federal Court of Appeal to confirm federal jurisdiction over its proposed facilities. In April 1987, the Board decided to proceed with the review and to refer the issue of jurisdiction to the Federal Court of Appeal.

On 27 November 1987, the Federal Court of Appeal ruled that the Board did not have jurisdiction over the proposed Cyanamid facilities. Cyanamid then applied to the Supreme Court of Canada for leave to appeal the Federal Court of Appeal's decision. The application was heard by the Court on 25 April 1988. In a decision rendered from the bench, the Court granted leave to appeal.

Following the Ontario Divisional Court judgment, the Lieutenant Governor of Ontario brought a reference on the matter to the Ontario Court of Appeal. The reference was heard in October 1987 and the Court of Appeal rendered its decision in February 1988 affirming that by-pass pipelines similar to that proposed by Cyanamid fell within provincial jurisdiction. Cyanamid appealed the decision of the Court of Appeal of Ontario to the Supreme Court of Canada.

Cyanamid wholly discontinued its appeal to the Supreme Court of Canada on 25 September 1989. This action was taken prior to the hearing of the subject.

Union Gas Limited

On 20 December 1988, Union Gas filed with the Federal Court of Appeal an application for leave to appeal the Board's November 1988 decision in which the Board denied an application by Union Gas to review that part of the Board's July 1988 Reasons for Decision (GH-2-87) relating to the Kirkwall Line and for an order to vary Certificate GC-73 issued to TransCanada PipeLines Limited following the hearing held pursuant to GH-2-87.

In its November 1988 Reasons for Decision, the Board indicated that it was of the view that the Union Gas application was tantamount to a request to suspend the certificate issued to TransCanada, a request that the Board was not empowered to entertain except under the circumstances set out in section 56 of the *National Energy Board Act*, namely, if the holder of the certificate consents to such a suspension or has breached any term or condition attached to the certificate.

Union Gas had argued that the Board erred in law in determining that it had no jurisdiction to hear the applicant's motion under either subsection 21(1) or subsection 21(2) of the *Act*.

Some time after leave to appeal was granted, the Federal Court of Appeal asked Union Gas to indicate whether it wished to proceed with the appeal or to hold the file in abeyance pending the completion of TransCanada's purchase of Union Gas' Kirkwall Line. Union Gas discontinued the appeal in May and filed a notice of discontinuance with the Court shortly thereafter.

Midland Cogeneration Venture Limited Partnership

On 31 July 1989, Midland Cogeneration Venture Limited Partnership applied to the Federal Court of Appeal for leave to appeal the Board's June 1989 decision (GH-8-88) in which the Board authorized five Canadian companies to export natural gas to Midland and Consumers Power Company and conditioned the licences so that the exports to Midland could not exceed those to Consumers in any one year.

After obtaining leave to appeal in September 1989, Midland filed a notice of appeal with the Federal Court of Appeal on 17 November 1989. By a letter to the Court dated 29 November, Counsel for Midland indicated that Midland was assessing the timeframe within which it wished to pursue this appeal and requested that the Court defer composition of the appeal case until Midland finalized its plans and so advised the Court.

In related actions, the five licence-holders applied to the Board pursuant to subsection 21(2) of the *National Energy Board Act* for an amendment to the licences in order to modify the conditions that link the sales to Midland to those made to Consumers.

***Western Gas Marketing Limited, as agent for TransCanada
PipeLines Limited, Indeck Gas Supply Corporation, Niagara
Mohawk Power Corporation and Shell Canada Limited***

On 20 November 1989, the Board issued its decision in respect of GH-1-89 in which it approved four applications for gas export licences and denied four. The Board's Reasons for Decision were issued on 21 December 1989.

On 20 December 1989, Western Gas Marketing filed with the Federal Court of Appeal a notice of motion requesting an extension of time within which to file an application for leave to appeal. The *National Energy Board Act* requires that applications for leave to appeal be filed with the Court within one month after the making of the decision appealed and, in the case at hand, Western Gas Marketing had not had an opportunity within the one-month period to review the Board's Reasons for Decision. On 3 January 1990, the Court granted the application and provided Western Gas Marketing with an extension of fifteen days following receipt of the Reasons for Decision for filing its application for leave to appeal.

On 19 December 1989 Indeck also filed an application for an extension of time within which to file an application for leave to appeal as well as a notice of application for leave to appeal. Shell Canada filed a similar application for an extension of time on 19 December 1989. On 20 December 1989 Niagara Mohawk filed an application with the court for leave to appeal the Board's decision.

All these actions relate for the most part to the fairness of the procedure used by the Board in conducting its benefit-cost analysis in assessing the export applications in question and to the question of whether the use of benefit-cost analysis to restrict exports is contrary to the Free Trade Agreement.

Industrial Gas Users Association

On 21 December 1989, IGUA applied to the Federal Court (Trial Division) for orders (a) setting aside the decision taken at the GH-5-89 pre-hearing conference to not include alternative toll methodology (i.e. rolled-in vs. incremental) in the list of issues to be considered in GH-5-89, (b) requiring the Board to add the issue to the list of issues and (c) prohibiting the Board from commencing GH-5-89 until the issue is included. The applications are to be heard by the Federal Court in February 1990.

Legislation and Regulations

... includes changes to the Act and Regulations under which the Board operates.

The following section outlines changes that were made during 1989 to the Act, Regulations, and Rules under which the Board operates. The Board's quarterly regulatory agendas provide additional detail on this subject.

Amendments to the National Energy Board Act

Bill C-23, *an Act to amend the National Energy Board Act and to repeal certain enactments in consequence thereof*, was passed by the House of Commons on 14 December 1989. At year-end, it was being considered by the Senate.

The purpose of Bill C-23 is twofold. First, it gives effect to the government's policy respecting the regulation of electricity trade announced in September 1988. Second, it provides for a number of minor changes to the *National Energy Board Act* that will reduce costs, streamline the Board's operations and reflect the reduced level of regulation that has resulted from the government's market-based approach to energy policy.

The basic principle governing the government's policy on the regulation of electricity trade and underlying the amendments contained in Bill C-23 is that there should be no unwarranted duplication of federal and provincial regulation.

Applicants seeking to export electricity or to build an international power line will continue to submit their proposals to the Board. Upon receiving the application, the Board will ensure that notice is published in the Canada Gazette, and in such other publications as the Board considers appropriate.

The Board will then carry out an initial review of the application. If the Board is satisfied that the assessments and mitigating measures carried out by the applicant and the sponsoring provinces have adequately addressed all relevant concerns, the applicant will receive its authorization in the form of a permit. However, if there are reasons to believe that the proposal may not be in the public interest, the Board will recommend to the Minister of Energy, Mines and Resources that a public hearing be held. The Board's advice will be made public.

In deciding whether there is a need to complement measures taken by the applicant and the sponsoring provinces, the Board shall have regard to all considerations that appear to it to be relevant, including any impacts that a proposed export or international power line might have on provinces other than the sponsoring province, the environmental impacts of the proposal and, in the case of a proposed export, whether Canadians wishing to buy electricity from the applicant to serve their own domestic needs have been able to do so on terms no less favourable than the terms being offered to export customers.

If the Governor in Council, on the advice of the Minister, accepts the Board's recommendation, there will be a public hearing conducted by the Board. The Board will either deny the application or issue a licence in the case of exports or a certificate in the case of power lines, subject to the approval of the Governor in Council.

Bill C-23 also proposes changes in the way that detailed routing of international power lines is determined. In all cases, the Board will continue to authorize the general corridor through which the line will pass but the precise location of the line within this corridor will be determined by provincial regulatory procedures, and any expropriation that may be necessary will be carried out under provincial laws. However,

as an exception to this general procedure, an applicant may elect to have federal law govern the precise location and construction of an international power line.

The procedures for the regulation of interprovincial power lines are unchanged from those set forth in the present *Act*. For the most part, such lines will be regulated by the provinces through which they pass. However, the Governor in Council may, by order, designate that an interprovincial power line be certificated by the Board. When such an order is made, the detailed location and construction of the line will be governed under federal law.

Finally, the maximum duration of export authorizations for electricity currently limited to 25 years will be extended to 30 years.

The proposed amendments that do not relate specifically to electricity are in the nature of “housekeeping amendments” such as the redefinition of certain terms to facilitate the application of the *Act* or the clarification of certain powers of the Board with respect to such matters as accident inquiries, accounting practices and repairs to pipelines. More significant changes provide for a reduction in the number of permanent Board members from 11 to a maximum of 9, the deletion of the three Associate Vice-Chairmen’s positions and the introduction of cost-recovery powers for the Board.

Onshore Pipeline Regulations

The *Onshore Pipeline Regulations* came into effect in 1988. These regulations combined and replaced the *Oil Pipeline Regulations* and *Gas Pipeline Regulations* and provide for the safe design, construction and operation of onshore oil and gas pipelines.

The Order in Council making the regulations stipulated that the regulations were made by the Governor in Council, where in fact, it should have cited that it was the National Energy Board, with the approval of the Governor in Council, that was making the regulations. It was necessary to remake the regulations under the appropriate regulation-making authority. The regulations were remade and came into effect on 1 July 1989.

The regulations will be amended to reflect the outcome of Board-industry deliberations on the 12 recommendations

included in the Board's report of June 1986 on an accident on Interprovincial's system in February 1985.

Offshore Pipeline Regulations

On 24 November 1988, the Board issued for comment the second draft of its new *Offshore Pipeline Regulations*. These regulations provide for safe design, construction, and operation of offshore pipelines. The CSA standard "CAN/CSA-Z187-M87, Offshore Pipelines", forms the technical basis for the Board's new *Offshore Pipeline Regulations*. Interested parties had until the end of April to submit comments. A final draft of the regulations was approved by the Board on 12 July. The draft regulations have been submitted to the Department of Justice for examination.

Rules of Practice and Procedure

The Board issued a revised draft of its *Rules of Practice and Procedure* and schedules on 7 May 1987 and directed all parties to use them as of that date. The Department of Justice has completed an initial examination of the Rules and the Board is reviewing them in light of the amendments to the Act as a result of Bill C-23, recent changes in export regulation and comments received from the Department of Justice.

The revised draft will require further examination by the Department of Justice and publication in the Canada Gazette.

International Power Line Crossing Regulations

During 1988, on the advice of the Department of Justice, the Board divided its proposed International Power Line Crossing Regulations into two sets of regulations, as follows:

1. International Power Line Crossings, Construction and Abandonment Regulations

These regulations deal with crossings by international power lines as well as the company's responsibilities to maintain crossing records, abandon crossings, and report incidents.

2. International Power Line Crossing Regulations

These regulations deal with crossings of international power lines and set out the terms and conditions under which leave of the Board to cross such power lines need not be obtained.

The scope of these regulations is being re-examined in view of the new electricity export policy and the provisions of Bill C-23 (please refer to *Amendments to the National Energy Board Act* above). The regulations are subject to examination by the Department of Justice and publication in the Canada Gazette.

National Energy Board Part VI Regulations

The *Part VI Regulations* are being reviewed by the Board to reflect recent changes in export regulation and changes suggested by the Standing Joint Committee on Regulatory Scrutiny including the removal of those provisions respecting export and import reporting requirements, which are now included in the proposed *Export and Import Reporting Regulations* (see below).

The revised *Part VI Regulations* and the new proposed *Export and Import Reporting Regulations* were submitted to the Department of Justice but their examination has been held in abeyance pending further amendments required by the coming into force of Bill C-23 and the market-based approach to export regulation.

Export and Import Reporting Regulations

These proposed regulations would require persons exporting oil, natural gas, or electricity, or importing natural gas under licence or order to provide certain information to the Board. The information is similar to that currently required by the *Part VI Regulations*. However, on the suggestion of the Standing Joint Committee on Regulatory Scrutiny, the Board decided to remove the reporting requirements from the *Part VI Regulations* and make new regulations under subsection 129(1).

The regulations, which will require Governor in Council approval, will be processed together with the above-noted changes to the *Part VI Regulations*.

Cost Recovery Regulations

Pursuant to the government's cost recovery initiative introduced in the May 1985 Budget, the Board completed a feasibility study on recovering the costs of regulation from companies under its jurisdiction. The study received Treasury Board's approval in principle in November 1988. Consultation with industry took place during 1989 and the Board has submitted to the Minister its implementation proposal for Treasury Board approval.

Bill C-23 gives to the Board the necessary powers to recover costs and draft *Cost Recovery Regulations* have been submitted to the Department of Justice. The coming into force of these Regulations is subject to Bill C-23 becoming law and to the approval of Treasury Board.

Organization

Person-Year Allocation: 336
Budget: \$24.4 million

Members of the National Energy Board

The membership of the Board as of 31 December 1989 was:

Roland Priddle	Chairman
Jean-Guy Fredette	Vice-Chairman
R. Byron Horner, Q.C.	Member
William G. Stewart	Member
A. Boyd Gilmour	Member
Anita Côté-Verhaaf	Member
Martha Musgrove	Member
David B. Smith	Temporary Member
Kenneth W. Vollman	Temporary Member

Kenneth Vollman was re-appointed a temporary Board Member for a three-year term effective 30 September 1989.

In October 1989, the government announced its intention to appoint Céline Bélanger and Roy Illing as Board Members commencing 1 January 1990.

Standing Panels

In early 1989, the Board suspended the practice of referring non-hearing regulatory matters to the three standing panels, Energy Commodities, Pipeline and Financial Regulatory. Since the suspension, all non-hearing regulatory work has been referred to the full Board.

Staff

For the fiscal year 1989-90 the Board's budget was \$24.4 million with a person-year allocation of 336.

The Board's offices and branches are described below; the inside back cover of this report lists the Board's senior staff.

The **Executive Director** is the Board's senior staff member and Chief Operating Officer. The responsibilities include the overall management of the Board, the acquisition and allocation of human and financial resources, the efficiency and effectiveness of Board activities and operations and the provision of advice on such matters as the Chairman may deem appropriate.

The **Finance and Administration Branch** coordinates and administers the financial and administrative policies under which the Board operates. It provides advice and services relating to accounts processing, financial planning and budgeting; property, materiel, records and mail management. It also provides accounting services for the Northern Pipeline Agency.

The **Personnel Branch** provides advice and services in the areas of staffing, human resources planning, training, employment equity, official languages, classification, staff relations, safety and health, pay and benefits, conflict of interest, employee assistance, merit awards and security.

The **Planning and Review Branch** is responsible for the Board's strategic and operational planning process, program review and evaluation, the internal audit program and the management practices program.

The **Information Technology Branch** is responsible for computer systems services, word processing support, data processing support and telephone services. This includes

consultative service on computer operations, data management, program design and development, and an advisory service on the latest data processing techniques and applications. Branch responsibilities also include the integration of information and processing systems and services for the Board.

The **Director General, Energy Regulation** is responsible for the integration of all staff activities involving the regulation of energy exports and international power lines. This encompasses planning and coordinating all work affecting the regulation of international power lines, exports of oil, gas, and electricity under Part VI of the *National Energy Board Act*, and coordinating the analysis of all matters related to energy demand and supply.

The **Economics Branch** is responsible for evaluating the economic worth to Canada of applications before the Board to licence exports and to certificate pipeline and international power line projects. The Branch develops, in collaboration with others in the Board, general approaches to energy regulation and pipeline toll and tariff structures which involve considerations of economic efficacy. The Branch is responsible for preparing detailed projections of energy demand in Canada, macro-economic projections for the long-term performance of the Canadian economy, long-term outlooks for Canadian exports of natural gas and electricity to the American market and long-term scenarios of world oil prices, these activities largely in support of the Board's Supply and Demand Reports, market monitoring requirements and evaluations of export licence and facilities applications. The Branch also advises on the state of competitive conditions in energy markets, to the extent required for the Board's regulatory mandate.

The **Energy Supply Branch** is responsible for advising on matters relating primarily to the supply of conventional and synthetic crude oil, bitumen, natural gas and natural gas liquids. The Branch prepares both short-term and long-term projections of supplies of these energy commodities from conventional, oil sands and frontier sources, based on its own studies and consultations with industry and other groups. The Branch also prepares estimates of established oil and gas reserves in Canada; conducts analyses of ultimate resource potentials and reserves additions rates; evaluates the supply costs and economics of resource projects; monitors developments in the energy sector, particularly the producing industry; and, investigates potential new energy supply sources.

The Branch undertakes these activities in support of both the Board's regulatory and advisory responsibilities. These activities are conducted in both the Board's Calgary and Ottawa offices.

The **Electric Power Branch** advises on matters relating to electricity export licensing, international power line certification, and regulatory surveillance. The Branch prepares supply and demand forecasts for electricity that are used in dealing with electrical and other applications, and in support of the Board's Supply and Demand reports, reviews the North American market for electricity, and provides advice on matters under federal jurisdiction that relate to the production, transportation, sale, and exchange of electricity.

The **Gas and Oil Branch** provides advice to the Board on oil and gas matters including evaluation of oil and gas markets and commercial transactions; transmission, processing and distribution of commodities. It also synthesizes such information into assessments applicable to the Board's regulatory roles. The Branch is responsible for export and import regulation, monitoring, and for matters related to traffic and discrimination in service for gas and oil pipelines. The Branch collects and disseminates data on exports and imports including volumes and prices, and also prepares and supplies data on the consumption and transportation of crude oil, petroleum products, gas products and natural gas, incorporating estimates of short-term domestic and export demand and pipeline throughputs.

The **Director General, Pipeline Regulation** integrates all staff activities relating to the regulation of gas, oil, and petroleum products pipelines. This encompasses the design, construction, operation, safety, and environmental concerns specified under Part III of the *National Energy Board Act* and matters regarding traffic, tolls, and tariffs under Part IV of the *Act*.

The **Environment Branch** provides advice on the protection of the environment during the construction and operation of pipeline and power line facilities and on the protection of land-owner rights with respect to land acquisition. It advises on the environmental consequences of electricity and natural gas exports including the impacts resulting from the generation, production and end-use of that energy. In addition, Branch staff provide advice on the technical requirements related to third-party crossings on pipeline rights-of-ways.

The **Pipeline Engineering Branch** advises on matters relating to pipeline certificates issued under the *National Energy Board Act* and for the regulation of the safety of pipeline facilities under the Board's jurisdiction. The Branch is the Board's principal source of advice on technical matters included in applications by pipeline companies for facilities construction. Board staff in this Branch also administer certain portions of the *Canada Labour Code* relating to pipeline worker safety.

The **Financial Regulation Branch** has the primary responsibility for tolls and tariffs, financial regulatory advice and costs of transportation under specific areas of the *National Energy Board Act*. As such, its main function includes the provision of expert financial advice to the Board and to the hearing panel on all toll applications. It also audits the accounts of pipeline companies under the Board's jurisdiction and monitors the financial performance of pipelines on a regular basis to ensure that tolls are just and reasonable.

The **Law Branch** provides legal advice to the Board on all matters relating to the Board's powers and responsibilities, acts as Counsel for the Board at public hearings, and represents the Board in proceedings before the Federal and Supreme Courts of Canada.

The **Office of the Secretary** receives all applications and submissions and coordinates their consideration by the Board. It advises on the scheduling of hearings, and makes all administrative arrangements for public hearings in Ottawa and across Canada. In addition, it provides media and public relations services, publications services and operates the Board's library. It administers the *Access to Information and Privacy Acts* and coordinates translation services with the in-house translation unit provided by Secretary of State.

Functions and Responsibilities

... oil, natural gas and electricity exports; pipeline and power line construction; pipeline tolls and tariffs; energy studies.

Responsibilities Under the National Energy Board Act

The Board has two principal responsibilities under the *National Energy Board Act*:

- to regulate specific matters concerning oil, gas and electricity in the public interest, and
- to advise the government on the development and use of energy resources.

The Board has the authority to hold inquiries into any aspect of energy matters under its jurisdiction and to issue reports for the use and information of government, Parliament, and the general public.

The regulatory roles of the Board are described below.

Export Licences and Orders

The Board issues long-term licences for the export of oil, gas, and electricity. Such licences are normally granted following public hearings. In issuing export licences, the Board must satisfy itself that, among other things, the proposed export is in the Canadian public interest. The Board also issues orders for short-term exports of energy commodities subject to the restrictions imposed in the *National Energy Board Part VI Regulations*. In addition, the Board authorizes licences and orders for imports of natural gas.

Regulation of Pipeline Traffic, Tolls, Tariffs, and Accounting Practices

The Board regulates the traffic, tolls and tariffs of pipeline companies under federal jurisdiction to ensure that the tolls are just and reasonable and that there is no unjust discrimination in tariffs or service.

Certificates of Public Convenience and Necessity for Pipelines and Power Lines

The Board grants certificates to construct and operate interprovincial and international oil, gas, and petroleum products pipelines, as well as international and designated interprovincial electric power lines. Before a certificate is issued, the Board is required to hold a public hearing.

Detailed Routing - Pipelines and Power Lines

Persons whose lands may be affected by the route of a pipeline or power line approved by the Board can present their views to the Board at a local public hearing. Their evidence is considered in the determination of the final detailed route of the line.

Pipeline and Power Line Orders

The Board approves without a public hearing minor pipeline facilities or minor additions to, or modifications of, existing pipeline systems. These approvals are restricted to pipelines not more than 40 kilometres long and to installations such as tanks, pumps, compressors, and meter stations. The Board may also authorize, without a public hearing, the construction and operation of international power lines not exceeding 50 kilovolts.

Pipeline Safety

The Board's *Onshore Pipeline Regulations* provide for the safe design, construction, and operation of pipelines under the Board's jurisdiction. To ensure high standards of pipeline construction and operation, the Board carries out inspection programs and conducts investigations of pipeline system performance.

Pipeline Utility Crossings

The Board monitors the construction and excavation activities of contractors, pursuant to the *Pipeline Crossing Regulations*, to ensure safety during construction of crossings of federally regulated pipelines.

Environmental Protection

The Board considers the environmental implications of any proposal to build and operate an oil or gas pipeline or international power line. Companies preparing an application to the Board are encouraged to anticipate and discuss with all levels of government, public interest groups, and affected landowners the environmental issues and concerns that the proposed project could create. Such early planning with respect to environmental matters produces a more complete application addressing the appropriate alternatives and taking into account the public's concerns.

To ensure the highest level of environmental protection, the Board welcomes interventions at hearings from local environmental and public interest groups, as well as concerned individuals. To encourage public participation, the Board often convenes the hearing in the area where construction impacts would occur.

After the issuance of a certificate or order, the Board audits the company's construction activities, and later, during the operation of the system, its routine maintenance and monitoring procedures. In that way, the Board can be satisfied that the company is continuing to protect the environment, and to ensure public health and safety.

Socio-Economic Impact

As part of its facilities approval process' the Board considers local and regional social and economic concerns. The Board

ensures that applicants take all reasonable steps to minimize project-induced negative impacts and to enhance project benefits accruing to local and regionally affected social groups. This can include a pre-project socio-economic impact assessment, a review of proposed socio-economic action plans, post-certificate monitoring of the success or failure of the action plans, and an assessment of actual project impacts.

Responsibilities Under the Energy Administration Act

The Board's responsibilities under the *Energy Administration Act* relate to the collection of oil export charges. Although the charges on crude oil and bulk petroleum product exports were reduced to zero in 1985, some activity remained in the areas of collection and write-off of outstanding assessments.

Responsibilities Under the Northern Pipeline Act

The Board's statutory responsibilities regarding the Canadian portion of the Alaska Natural Gas Transportation System relate mainly to the regulation of tolls and tariffs, the approval of pipe specifications, the granting of leave to open orders, and the regulation of the operation of the line. The Board also provided to the Northern Pipeline Agency finance and personnel services as well as technical advice. On 30 September 1989, Mr. K.W. Vollman was re-appointed the Designated Officer for the Northern Pipeline Agency.

Labour Canada Agreement

A memorandum of understanding has been entered into by the Board and Labour Canada, whereby certain Board inspectors have been appointed safety officers by the Minister of Labour and have assumed operational responsibilities for matters of occupational safety and health as covered in Part II (previously Part IV) of the *Canada Labour Code*. The agreement, which became effective on 23 February 1987, includes all pipelines under the Board's jurisdiction but excludes certain areas such as head offices and regional offices of the pipeline companies; these will continue to be the responsibility of Labour Canada inspectors.

Public Access and Participation

The Board is a court of record. With specific exceptions relating to the confidentiality of certain competitive pricing information, the Board's deliberations are conducted on the basis of information that is publicly filed and publicly available in the Board's library in Ottawa and at its office in Calgary. For major applications and inquiries, the Board holds public hearings at which applicants and interested persons have full rights of participation in the official language of their choice. To give parties an opportunity to discuss their concerns or questions, the Board provides advance notice of its hearings by requiring that notices be published in newspapers and allows time for parties to respond to requests for information.

In addition, the Board issues quarterly regulatory agenda on matters coming before the Board as well as information bulletins and press releases on a variety of matters pertaining to Board activities.

Implementation of Board Decisions

When the Board is prepared to grant a certificate for a pipeline or a power line or to issue a licence for the export of natural gas or electricity, the import of natural gas, or the long-term export of oil, it so reports to the Governor in Council through the Minister of Energy, Mines and Resources. If a certificate is approved by the Governor in Council, the certificate is then issued by the Board. In the case of long-term export or import applications, licences issued by the Board go into effect on approval by the Governor in Council. A decision of the Board to refuse an application is not subject to referral to the

Governor in Council, except in the case of energy exports to the United States where certain provisions of the Free Trade Agreement would apply as a consequence of the refusal. The Board's Reasons for Decision on applications are issued as public documents. The Board's decisions on tolls and tariffs are made without reference to the Governor in Council, as are the majority of the Board's day-to-day decisions.

Reviews and Appeals of Board Decisions

The Board may review, rescind, or change any of its orders or decisions, or rehear any application before deciding on it. It may also change a previously issued certificate or licence, but no such change is effective until approved by the Governor in Council.

Parties may apply to the Board requesting that a decision be reviewed. A decision may be appealed to the Federal Court of Appeal provided the appeal is based on a point of law or jurisdiction.

Awarding of Costs

Except in detailed route hearings, the Board does not have the power to award costs to participants in its proceedings.

In the case of detailed route hearings, the Board may establish the appropriate level of compensation to be paid to a landowner for costs associated with participation in the hearing.

Reasons for Decisions and Other Major Documents Issued in 1989

Reasons for Decisions

1. TRANSCANADA PIPELINES LIMITED - Application dated 5 February 1988 for certain orders respecting tolls under sections 50, 51 and 53 of the National Energy Board Act - (Hearing Order RH-1-88 Phase I) - November 1988 (issued January 1989)
2. TRANSCANADA PIPELINES LIMITED - Application dated 28 July 1989 pursuant to Parts III, IV and V of the Act - (Hearing Order GH-4-88) - January 1989
3. NORTH CANADIAN OILS LIMITED - Application pursuant to subsection 71(2) and 71(3) of the Act for Orders requiring Foothills Pipe Lines (Yukon) Ltd. to receive, transport and deliver gas offered by North Canadian Oils Limited - (Hearing Order MH-2-88) - May 1989
4. ALBERTA AND SOUTHERN GAS CO. LTD. - Application pursuant to Section 21 of the National Energy Board Act for a change, alteration or variation to natural gas export licence GL-99 - (Hearing Order GH-5-88) - May 1989
5. AMOCO CANADA PETROLEUM COMPANY LTD. - Application pursuant to Part VI of the National Energy Board Act for a licence to export gas - (Hearing Order GH-3-89) - May 1989
6. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY - Application to vary the term of licence EL-162 pursuant to subsection 21(1) of the National Energy Board Act - (Hearing Order EH-1-89) - June 1989

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7. CANTERRA ENERGY LTD., NORCEN ENERGY RESOURCES LIMITED, POCO PETROLEUMS LTD., VECTOR ENERGY INC., and WESTERN GAS MARKETING LIMITED - Applications pursuant to Part VI of the National Energy Board Act for licences to export natural gas and SHELL CANADA LIMITED - Application pursuant to Section 21 of the National Energy Board Act for a change, alteration or variation of natural gas export licence GL -100 - (Hearing Order GH-8-88) - June 1989
 8. PROGAS LIMITED and WESTERN GAS MARKETING LIMITED - Applications pursuant to Section 21 of the National Energy Board Act for a change, alteration or variation to natural gas export licence GL-98 and GL-83 - (Hearing Order GH-9-88) - June 1989
 9. FOOTHILLS PIPE LINES (ALTA.) LTD. - Application dated 11 April 1989 for an order, pursuant to section 58 of the Act, requesting an exemption from paragraph 30(1)(a), subsection 30(2), and Section 31 of the Act - (Hearing Order GHW-1-89) - June 1989
 10. TRANSCANADA PIPELINES LIMITED - Application dated 5 February 1988 for certain orders respecting tolls under Sections 50, 51 and 53 of the National Energy Board Act - (Hearing Order RH-1-88 Phase II) - June 1989
 11. HYDRO-QUÉBEC - Application for a licence to export electricity to the New York Power Authority, pursuant to Part VI of the National Energy Board Act - (Hearing Order EH-2-89) - July 1989

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12. WESTCOAST ENERGY INC. - Application dated 14 April 1989 for new tolls effective 1 November 1989 - (Hearing Order RH-1-89) - September 1989
 13. ESSO RESOURCES CANADA LIMITED, SHELL CANADA LIMITED and GULF CANADA RESOURCES LIMITED - Applications pursuant to Part VI of the National Energy Board Act for licences to export natural gas - (Hearing Order GH-10-88) - August 1989
 14. TRANSCANADA PIPELINES LIMITED- Applications pursuant to Part III of the National Energy Board Act for a certificate to construct facilities and AMOCO CANADA PETROLEUM COMPANY LTD., CONSOLIDATED EDISON COMPANY OF NEW YORK, ICG UTILITIES (ONTARIO) LTD, INDECK GAS SUPPLY CORPORATION, WESTERN GAS MARKETING LIMITED, DIRECT ENERGY MARKETING LIMITED - Applications pursuant to Part VI of the National Energy Board Act for licences to export natural gas and PROGAS LIMITED, SHELL CANADA LIMITED - Applications pursuant to Part I of the National Energy Board Act for a change, alteration or variation of natural gas export licences - (Hearing Order GH-1-89 Volume I) - December 1989

Other Major Documents

1. 1988 Annual Report - 31 March 1989
2. Exports of Petroleum Products 1988 - April 1989
3. Exports of Crude Oil 1988 - June 1989
4. Annual Report Pursuant to Access to Information Act and Privacy Act - 23 June 1989
5. Natural Gas Market Assessment - October 1989
6. National Energy Board - An Introduction - November 1989
7. Draft Guidelines for Early Notification

Copies of the Board's Reasons for Decisions and other reports are available on request from:

Regulatory Support Office
National Energy Board
473 Albert Street
Ottawa, Canada
K1A 0E5

(613) 998-7204

Companies Under National Energy Board Jurisdiction

The following is a list of pipeline companies¹ which own and/or operate interprovincial or international pipelines under the Board's jurisdiction, companies that have been granted licences to export natural gas, and electric utilities that have been granted electricity export licences by the Board. References to the following companies in this report use the abbreviations indicated in brackets.

Pipelines

Group 1 Gas

Alberta Natural Gas Company Ltd. (Alberta Natural Gas)
Foothills Pipe Lines Ltd. (Foothills)
Gazoduc Trans Québec & Maritimes Inc. (TQM)
TransCanada PipeLines Limited (TransCanada)
Westcoast Energy Inc. (Westcoast)

Group 1 Oil and Products

Cochin Pipe Lines Ltd. (Cochin)
Interprovincial Pipe Line Company,
a division of Interhome Energy Inc. (Interprovincial)²
Interprovincial Pipe Line (NW) Ltd., (IPL(NW))
Trans Mountain Pipe Line Company Ltd. (Trans Mountain)
Trans-Northern Pipelines Inc. (Trans-Northern)

1 The pipeline companies have been divided into two groups. Group 1 consists of the ten major pipeline companies which are audited by the Board on a regular basis and whose operating results are continuously monitored by the Board. The 39 companies under the Board's jurisdiction that are not included in Group 1 have been designated as Group 2 companies.

2 On 5 May 1988, Interprovincial Pipe Line Limited changed its corporate name to Interhome Energy Inc. However, the pipeline operations are being conducted under the business name Interprovincial Pipe Line Company, a division of Interhome Energy Inc.

Group 2 Gas

Amoco Canada Petroleum Company Ltd. (Amoco) (inactive)
Amoco Canada Resources Limited (Amoco Canada) (inactive)
A.P.R. Pipeline Company Ltd. (A.P.R. Pipeline)
Bonanza Oil and Gas Ltd. (Bonanza)
Canadian Hunter Exploration Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Champion Pipe Line Corporation Limited (Champion)
Consumers' Gas (Canada) Limited (Consumers' Gas)
ICG Transmission Holdings Ltd. (ICG)
Many Islands Pipe Lines (Canada) Limited (Many Islands)
Mid-Continent Pipelines Limited (Mid-Continent)
Minell Pipeline Ltd. (Minell)
Murphy Oil Company Ltd. (Murphy Oil) (inactive)
Newex Resources Ltd. (Newex)
Niagara Gas Transmission Limited (Niagara Gas)
Novacorp International Pipelines Ltd. (Novacorp)
Peace River Transmission Company Limited (Peace River)
Saskatchewan Power Corporation (Saskatchewan Power)
Shell Canada Products Limited (Shell Canada)
St. Clair Pipelines Ltd. (St. Clair Pipelines)
Union Gas Limited (Union Gas)

Group 2 Oil and Products

Aurora Pipe Line Company (Aurora)
Dome Kerrobert Pipeline Ltd. and Pan Canadian Kerrobert Ltd.
(Dome Kerrobert and Pan Canadian)
Dome NGL Pipeline Ltd. (Dome NGL)
Dome NGL Pipeline Ltd. and Amoco Canada Petroleum Company Ltd.
(Dome NGL and Amoco)
Esso Resources Canada Limited (Esso)
Manito Pipelines Ltd. (Manito) (includes Bodo Pipeline System
{Joint Venture})
Montreal Pipe Line Limited (Montreal)
Mont Resources Limited (Mont Resources)
Murphy Oil Company Ltd. (Murphy Oil)
Northwest Transmission Company Limited (Northwest
Transmission)
Petroleum Transmission Company (Petroleum Transmission)
Polysar Hydrocarbons Limited (Polysar)
Pouce Coupé Pipeline Ltd. (Pouce Coupé)
Sun Pipe Line Company (Sun)
Wascana Pipe Line Ltd. (Wascana)
Westspur Pipe Line Company (1985) Inc. (Westspur)
Windsor Storage Facility Joint Venture (Windsor Storage)
Yukon Pipelines Limited (Yukon)

Gas Export Licence Holders

Alberta and Southern Gas Co. Ltd. (Alberta and Southern)
Alberta Northeast Gas Ltd. & AEC Oil and Gas Company
(ANE & AEC)¹
Alberta Northeast Gas Ltd. & ATCOR Ltd. (ANE & ATCOR)¹
Alberta Northeast Gas Ltd. & ProGas Limited (ANE & ProGas)¹
Alberta Northeast Gas Ltd. & TransCanada PipeLines Limited
(ANE & TransCanada)¹
Amoco Canada Petroleum Company Ltd. (Amoco)
Amoco Canada Resources Limited (Amoco Resources)
BC Gas Inc. (BC Gas)²
Canadian Hunter Exploration Ltd. (Canadian Hunter)
Canadian-Montana Pipe Line Company (Canadian-Montana)
Canterra Energy Ltd. (Canterra)
Consolidated Natural Gas Limited (Consolidated)
Esso Resources Canada Limited (Esso)
ICG Transmission Holdings Ltd. (ICG Transmission)
KannGaz Producers Ltd. (KannGaz)
Many Islands Natural Gas (Canada) Limited (Many Islands)³
Niagara Gas Transmission Limited (Niagara Gas)
Norcen Energy Resources Limited (Norcen)
Pan-Alberta Gas Ltd. (Pan-Alberta)
Poco Petroleums Ltd. (Poco)
ProGas Limited (ProGas)
Shell Canada Limited (Shell Canada)
TransCanada PipeLines Limited (TransCanada)
Union Gas Limited (Union Gas)
Westcoast Energy Inc. (Westcoast)

1 Joint licence holders

2 Export for Re-import

3 Re-export of import

Electric Power Licencees and Certificate Holders¹

Boise Cascade Canada Ltd. (Boise Cascade)
British Columbia Hydro and Power Authority (B.C. Hydro)
Canadian Niagara Power Company Limited (Canadian Niagara)
The Canadian Transit Company (Canadian Transit)
Cedars Rapids Transmission Company, Limited (Cedars Rapids)
Cominco Ltd. (Cominco)
Cornwall Electric (Cornwall Electric)¹
The Detroit and Windsor Subway Company
(Detroit and Windsor)
Fraser Inc. (Fraser)
Hydro-Québec (Hydro-Québec)
Maine and New Brunswick Electrical Power Company, Limited
(Maine and New Brunswick)
The Manitoba Hydro-Electric Board (Manitoba Hydro)
The New Brunswick Electric Power Commission
(New Brunswick Power)
Ontario Hydro (Ontario Hydro)
Saskatchewan Power Corporation (Sask Power)
West Kootenay Power and Light Company, Limited
(West Kootenay)

¹ All licencees except Cornwall Electric export over their own facilities for which Board certificates have been issued. Cornwall Electric exports its power over the facilities of Cedars Rapids.

Metric Conversion Table

The National Energy Board uses the International System of Units (SI). The energy units most commonly referred to in this report are the gigajoule (GJ) and the petajoule (PJ). A 30-litre gasoline fill-up contains about one gigajoule of energy. A petajoule is one million gigajoules. On average, a city the size of Toronto uses a petajoule of energy for all uses (heat, light, transportation, etc.) about every 15 hours.

The following conversion table is provided for the convenience of readers who may be more familiar with the Imperial System.

Approximate Conversion Factor

1 metre (m)	= 3.28 feet
1 kilometre (km)	= 0.62 mile
1 millimetre (mm)	= 0.039 inch
1 cubic metre (m ³) of oil	= 6.3 barrels
1 cubic metre (m ³) of natural gas	= 35.3 cubic feet
1 litre (L)	= 0.22 Imperial gallon
1 kilogram (kg)	= 2.20 pounds
1 gigajoule (GJ)	= 0.95 MMBtu, or 0.95 thousand cubic feet (Mcf) of natural gas at 1000 Btu/cf
1 petajoule (PJ)	= 0.95 billion cubic feet of natural gas, or 165 000 barrels of oil, or 0.28 terawatt hours of electricity

Abbreviations

gigajoule (GJ)	= 10 ⁹ J
terajoule (TJ)	= 10 ¹² J
petajoule (PJ)	= 10 ¹⁵ J
exajoule (EJ)	= 10 ¹⁸ J
kilowatt (KW)	= 10 ³ watts
megawatt (MW)	= 10 ³ KW
megawatt hour (MW.h)	= 10 ³ KW.h
gigawatt hour (GW.h)	= 10 ⁶ KW.h
terawatt hour (TW.h)	= 10 ⁹ KW.h

Appendices

Appendices

Energy Overview

1. Canadian Energy Consumption
2. Crude Oil and Equivalent Supply and Disposition
3. Natural Gas Supply and Disposition
4. Electricity Generation and Disposition

Oil

1. Certificates Issued During 1989 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length
2. Orders Issued During 1989 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length
3. Orders Issued During 1989 Approving Modifications and Additions to Existing Oil Pipeline Facilities
4. Exports of Petroleum Products - 1989
5. Exports of Canadian Crude Oil and Equivalent - 1988 and 1989
6. Exports of Canadian Crude Oil and Equivalent

Gas

1. Certificates Issued During 1989 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length
2. Orders Issued During 1989 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length
3. Orders Issued During 1989 Approving Modifications and Additions to Existing Gas Pipeline Facilities
4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

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5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1989
 6. Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1989
 7. Exports of Natural Gas
 8. Imports of Natural Gas
 9. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders
 10. Imports of Propane, Butanes, Ethane and Ethylene under Licences and Orders
 11. Total Net Exports of Propane and Butanes
 12. Natural Gas Volumes Authorized for Export

Electricity

1. Certificates Issued During 1989 Approving International Power Lines
2. Orders Issued During 1989 Relating to International Power Lines
3. Licences Issued During 1989 Relating to the Export of Electricity
4. Orders Issued During 1989 Relating to the Export of Electricity
5. Exports
6. Electricity Trade Between Canada and the United States
7. Electricity Trade Between the United States and Canada

Financial Regulation

1. Financial Information - Group 1 Oil Pipeline Companies
2. Financial Information - Group 1 Gas Pipeline Companies

Energy Overview

1. Canadian Energy Consumption(a) (Petajoules)

	1985	1986	1987	1988	1989(e)
Petroleum (b)	3134.6	3133.5	3202.4	3365.7	3513.4
Natural Gas (c)	2147.6	2132.0	2138.5	2368.4	2536.5
Hydroelectricity (d)	1084.5	1110.7	1130.5	1096.4	1027.8
Nuclear (d) (f)	714.2	841.6	905.3	958.9	928.3
Coal	1122.1	1040.0	1117.7	1200.3	1150.0
Renewable and Other	514.5	543.9	554.2	553.5	573.2
TOTAL FOR CANADA	8717.5	8801.7	9048.6	9543.2	9729.2

a - Includes non-energy use, own use, and conversions and includes fuel for electricity export.

b - Includes LPGs.

c - Excludes reprocessing shrinkage and includes ethane, reprocessing fuel and fuel used for bitumen production.

d - Hydro and nuclear are converted at 3.6 PJ/TW.h. and 12.1 PJ/TW.h. respectively.

If the energy were converted using the heat content of 10.5 petajoules per terawatt hour, this assumes that the amount of primary energy associated with hydro and nuclear electricity is the amount which would be required if fossil fuels were used. The amount would be:

	1984	1985	1986	1987	1988(e)
Hydroelectricity and Nuclear	3782.9	3970.0	4082.9	4029.9	3803.4

e - Estimate.

f - Includes energy used to produce steam.

Energy Overview

2. Crude Oil and Equivalent Supply and Disposition (Thousands of Cubic Metres per Day)

	1985	1986	1987	1988	1989(e)
Supply					
Canadian Production (a)	248.8	249.0	259.6	272.6	263.0
Imports (b)	43.4	56.6	64.7	71.7	76.9
Total Supply (d)	292.2	305.6	324.3	344.3	339.9
Disposition					
Domestic (b)	221.1	216.7	226.5	238.3	242.2
Exports (c)	75.8	93.6	99.6	112.8	102.9
Total Disposition (d)	296.9	310.3	326.1	351.1	345.1

a - Source: NEB.

b - Source: NEB Form 153 - Refinery Receipts.

c - Source: NEB Form 306 - Crude Oil Exports.

d - Total Supply does not equal total disposition due to inventory changes, etc.

e - Estimate.

Energy Overview

3. Natural Gas Supply and Disposition (Billions of Cubic Metres at 101.325 KPa and 15 Celsius)

	1985	1986	1987	1988	1989(e)
Net Sales in Canada	50.2	48.8	47.8	52.7	57.2
Other Uses in Canada (a)	1.0	2.5	2.1	2.9	2.6
Imports	0.0	-0.3	-0.1	-0.6	-1.2
Exports	26.2	21.1	28.0	35.9	37.9
Total Deliveries (b)	77.4	72.1	77.8	91.0	96.5
Marketable Gas Production (b)	81.5	74.9	80.9	93.5	97.5

a - Includes pipeline fuel and losses and other deliveries, less inventory changes.

b - Total deliveries includes synthetic natural gas but excludes reprocessing shrinkage and reprocessing fuel which are included in marketable gas production.

e - Estimate.

Energy Overview

4. Electricity Generation and Disposition (Terawatt Hours)

	1985	1986	1987	1988	1989
Total Generation	446.4	457.2	483.2	490.6	480.0 (p)
Imports (a)	0.2	0.2	0.5	2.8	8.7
Total Supply	446.6	457.4	483.7	493.4	488.7 (p)
Demand	405.1	422.1	438.3	463.7	470.2 (p)
Exports (a)	41.5	35.3	45.4	29.7	18.5

a - Excludes exchanges between Canada and the United States.

p - Preliminary.

National Energy Board



Office national de l'énergie

1989-06-15

To: Recipients of the
National Energy Board
1988 Annual Report

Attached is an errata sheet
which we would request that
you retain with the copy of
our 1988 Annual Report which
was recently sent to you.

We hope you have enjoyed
reading the report and regret
any inconvenience caused by
the errors.

Aux: Personnes qui ont reçu le
rapport annuel 1988 de l'Office
national de l'énergie

Vous trouverez ci-joint une
copie de l'errata du rapport
annuel 1988. Nous vous prions
de la conserver avec
l'exemplaire du rapport annuel
qui vous a récemment été
envoyé.

Nous espérons que vous avez
pris plaisir à la lecture du
rapport et nous regrettons
tout inconvénient causé par
les erreurs qui s'y sont
glissées.

L.M. Meagher
Secretary/La Secrétaire

ERRATA

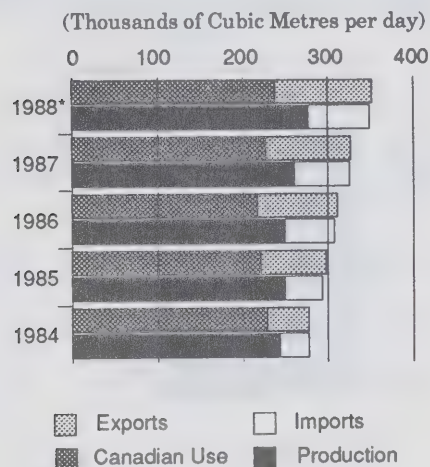
NATIONAL ENERGY BOARD

1988 ANNUAL REPORT

Figure 3, page 8 - Canadian Crude Oil and Equivalent -
Supply and Disposition

figure should appear as follows:

Figure 3
Canadian Crude Oil and Equivalent
Supply and Disposition



* Estimate

Reference: Energy Overview Appendix 2

Figure 22, page 45 - Gas Pipeline Companies Regulated by the
National Energy Board (map)

In the legend, "Proposed pipelines" and "Certificated but
not built" should be reversed.

NOTE: Gazoduc TQM is the company's business name. The
corporate name remains Trans Québec & Maritimes
Pipeline Inc.

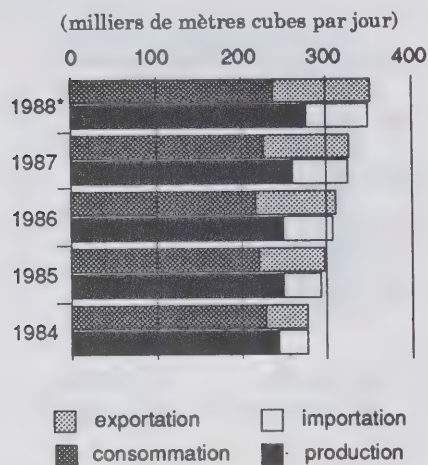
ERRATA

OFFICE NATIONAL DE L'ÉNERGIE

RAPPORT ANNUEL 1988

Figure 3, page 8 - Pétrole brut et équivalents - Canada
Approvisionnement et utilisation
doit apparaître comme suite:

Figure 3
Pétrole brut et équivalents - Canada
Approvisionnement et utilisation



* Estimation

Source: Synthèse de la situation
énergétique, annexe 2

Figure 22, page 47 - Sociétés pipelinières réglementées par
l'Office national de l'énergie (carte)

Dans la légende, "Gazoducs proposés" et "Autorisés aux
termes de certificats mais non construits" doivent être
inversés.

NOTE: Gazoduc TQM est l'appellation commerciale de la
société. Sa dénomination sociale demeure Gazoduc
Trans Québec & Maritimes Inc.

Oil

1. Certificates Issued During 1989 Approving New Oil Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were issued in 1989.

Oil

2. Orders Issued During 1989 Approving New Oil Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Pouce Coupé Pipe Line Ltd.	XO-1-89	89-04-05	26.1-km Pipeline, British Columbia-Alberta	2 845 000
Trans Mountain Pipe Line Ltd.	XO-2-89	89-07-20	Tank 17 Replacement, Alberta	2 800 000

Oil

3. Orders Issued During 1989 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Cochin Pipe Line Ltd.	XOM-9-89	89-06-23	Windsor Terminal Modifications	86 000
	XOM-10-89	89-06-23	Windsor Terminal Modifications	10 000
	XOM-15-89	89-09-14	Scraper Trap Modifications	110 000
	XOM-18-89	89-11-03	Windsor Storage Terminal Cavern I-4 Enlargement	260 000
Interprovincial Pipe Line Company, a division of Interhome Energy Inc.	XOM-3-89	89-03-06	Pump Station Modifications	1 000 000
	XOM-11-89	89-08-24	PCB Contaminated Capacitors, Tank Roof Seal and Emergency Oil Spill Equipment Replacements	6 400 000
	XOM-14-89	89-10-12	Pumping Station, Tanks, Meter Stations, Communications, Buildings and Equipment Upgrade and Replacement	61 600 000

Oil

3. (cont'd) Orders Issued During 1989 Approving Modifications and Additions to Existing Oil Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Interprovincial Pipe Line (NW) Ltd.	XOM-1-89	89-02-02	Pipeline Section Replacements	2 000 000
	XOM-8-89	89-05-08	Pump Station Modification	289 300
	XOM-13-89	89-10-12	Pump Station Modifications and Meter Installation	1 500 000
Petroleum Transmission Company	XOM-17-89	89-11-02	Integrity Program, Material Balance and Pump Upgrade	2 160 785
Trans Mountain Pipe Line Company Ltd.	XOM-5-89	89-05-19	Burnaby Tank Dyke Reconstruction	5 900 000
	XOM-6-89	89-05-08	Mainline Pipe, Vehicles and Work Equipment Replacements	264 000
	XOM-16-89	89-10-05	Station Equipment Modifications, Aircraft	2 450 000
	XOM-19-89	89-12-06	Upgrades and Modifications	10 455 000
Trans-Northern Pipelines Inc.	XOM-2-89	89-03-02	Scraper Trap, Computer Systems, Pump Stations, Spill Containment and Buildings Upgrade and Modifications	2 073 000
	XOM-4-89	89-05-19	Pipe Relocation	160 000
	XOM-7-89	89-05-08	Pipe Relocation	108 000
	XOM-12-89	89-07-20	Pipe Relocation	87 000

Oil

4. Exports of Petroleum Products - 1989 (Cubic Metres)

Month	Motor Gasoline	Middle Distillate	Heavy Fuel Oil	Aviation Turbine Fuel	Partially Processed Oil	Total (a)
January	165 042	455 829	89 558	177 448	30 944	918 821
February	208 983	398 249	36 433	164 345	112 713	920 723
March	327 650	446 654	58 195	139 753	39 726	1 011 978
April	281 745	297 869	67 750	174 524	94 820	916 708
May	329 843	300 660	63 720	164 508	18 753	877 484
June	238 575	171 439	72 798	194 038	111 428	788 278
July	177 075	370 857	73 502	133 177	121 595	876 206
August	291 456	413 762	105 043	213 371	79 859	1 103 491
September	211 733	358 276	67 024	117 314	37 689	792 036
October	250 000	325 405	66 992	100 000	60 000	802 397
November	220 000	420 000	70 000	191 522	65 000	966 522
December	180 000	455 000	63 985	200 000	75 473	974 458
Total (m³)	2 882 000	4 414 000	835 000	1 970 000	848 000	10 949 000
m³/d	7 896	12 093	2 288	5 397	2 323	30 000

a - Excludes propane, butane, lubricants, greases, asphalt, petrochemicals etc.

Oil

5. Exports of Canadian Crude and Equivalent - 1988 and 1989 (Cubic Metres)

	1988		1989	
	Total	Daily Average	Total	Daily Average
Amoco Production Company	3 851 987	10 525	4 068 376	11 146
Ashland Oil Inc.	1 702 215	4 651	1 439 424	3 944
BP Oil		-	102 216	280
Cenex	1 125 721	3 076	1 218 951	3 340
Chinese Petroleum Corporation	273 409	747	118 050	323
Clark Oil & Refining Corporation	3 851 088	10 522	2 912 773	7 980
Conoco Inc.	1 583 220	4 326	2 095 581	5 741
Crystal Refining	42 936	117	29 168	80
Exxon Company, U.S.A.	2 034 390	5 558	1 202 665	3 295
Frontier Oil and Refining Co.	218 115	596	82 460	226
Koch Refining Company	9 618 497	26 280	8 957 267	24 540
Laketon Refining Corp.	407 513	1 113	389 926	1 068
Marathon Petroleum Company	744 830	2 035	512 466	1 404
Mobil Oil Corporation	3 642 397	9 952	3 922 347	10 746
Montana Refining Company	271 988	743	247 532	678
Murphy Oil U.S.A. Inc.	723 215	1 976	977 323	2 678
Pecten Trading Company	81 226	222	26 927	74
Shell International Trading	34 517	94		-
Shell Oil Company	399 119	1 091	743 729	2 038
Sohio Supply Company	98 845	270		-
Sun Refining and Marketing Co.	2 685 132	7 336	2 594 849	7 109
Texaco U.S.A.	183 103	500	109 809	301
Tosco Corporation		-	18 305	50
Total Petroleum, Inc.	132 532	362	231 656	635
Union Oil Company of California	4 155 280	11 353	2 125 446	5 823
United Refining Company	3 193 570	8 726	3 151 538	8 634
U.S. Oil & Refining Co.	221 948	606	226 563	621
Others		-	42 343	116
TOTAL	41 276 789	112 778	37 547 690	102 870

Oil

6. Exports of Canadian Crude and Equivalent (Cubic metres per day)

	1985	1986	1987	1988	1989
Light Crude Oil and Equivalent	33 416	41 281	44 213	50 214	47 136
Heavy Crude Oil	41 901	52 301	55 357	62 565	55 734
Total	75 317	93 582	99 570	112 778	102 870

Gas

1. Certificates Issued During 1989 Approving New Gas Pipeline Facilities Including Pipeline Construction Exceeding 40 Kilometres in Length

No Certificates were Issued in 1989.

Gas

2. Orders Issued During 1989 Approving New Gas Pipeline Facilities Including Pipeline Construction Not Exceeding 40 Kilometres in Length

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Bonanza Oil and Gas Ltd.	XG-11-89	89-08-24	5.4-km, 114.3-mm Outside Diameter Pipe, Saskatchewan - Alberta	201 215
Foothills Pipe Lines (Alta.) Ltd.	XG-7-89	89-06-29	Decompression/Recompression Facilities Installation, Alberta	34 500 000
ICG Transmission Holdings Ltd.	XG-4-89	89-11-30	Two, Approx. 800-kW Compressor Stations, Manitoba and Ontario	7 000 000
TransCanada PipeLines Limited	XG-1-89	89-05-01	21.1-km, 1219-mm Outside Diameter Pipeline, Ontario	31 520 000
	XG-2-89	89-05-01	5.1-km, 1219-mm Outside Diameter Pipeline, Ontario	8 087 000
	XG-3-89	89-08-10	Oak Bluff Meter Station, Ontario	1 453 000
	XG-6-89	89-06-08	Kirkwall Tie-in, Nanticoke Meter Station and Piping Modifications at Hamilton Gate Meter Station, Ontario	2 128 000
	XG-8-89	89-06-19	1.6-km, 1219-mm Loop, Ontario	6 688 000
Westcoast Energy Inc.	XG-5-89	89-06-08	Aitken Creek Pipeline Loop, British Columbia	8 110 000
	XG-9-89	89-07-27	Cyprus Creek Meter Station, British Columbia	809 000
	XG-10-89	89-08-17	Pipe and Commotion Pipelines Construction, British Columbia	3 100 000

Gas

3. Orders Issued During 1989 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Canadian Hunter Exploration Ltd.	XGM-8-89	89-06-01	2.3-km, 406.4-mm Outside Diameter Pipeline	468 500
Consumers' Gas (Canada) Limited	XGM-19-89	89-10-24	Tie-in	375
Foothills Pipe Lines Ltd.	XGM-3-89	89-03-23	Valves, Warehouse Additions, Equipment Upgrade	1 808 500
	XGM-5-89	89-03-29	1.4-km Pipeline Upgrade	1 647 700
	XGM-23-89	89-11-16	Three Aero Assemblies and Meter Run	2 050 000
Gazoduc Trans Québec & Maritimes Inc.	XGM-17-89	89-09-29	Sales Tap	11 200
	XGM-20-89	89-10-26	General Office Equipment	540 000
Many Islands Pipe Line (Canada) Limited	XGM-12-89	89-08-12	Tie-in, Isolating Valve and 4.5-m, 88.9-mm Outside Diameter Pipe	6 100
	XGM-18-89	89-10-16	Three, 168.3-mm Outside Diameter Hot Taps	62 000
Niagara Gas Transmission Limited	XGM-14-89	89-08-16	NPS 12 Valve and Pipe Replacement	34 175
St. Clair Pipelines Ltd.	XGM-24-89	89-11-14	175-m Pipeline Extension	67 000
TransCanada PipeLines Limited	XGM-2-89	89-01-18	Telemetry Installation	143 000
	XGM-4-89	89-03-23	Pipe Replacements	1 467 000
	XGM-6-89	89-04-20	Pipe, Ice Detection System Compressor and Power Turbine Replacement	4 858 000

Gas

3. (cont'd) Orders Issued During 1989 Approving Modifications and Additions to Existing Gas Pipeline Facilities

Applicant	Order No.	Issued	Facilities	Estimated Cost (\$)
Westcoast Energy Inc.	XGM-9-89	89-06-15	Compressor Modifications and PCB Storage Buildings	2 470 000
	XGM-10-89	89-07-27	Health Equipment, Meter Station Buildings and Mainline Valve Replacement	604 000
	XGM-13-89	89-08-31	Boiler Replacement	101 000
	XGM-15-89	89-10-05	A Gas Chromatograph	50 000
	XGM-22-89	89-11-16	Pipe Replacements, Compression and Metering Upgrade	24 849 000
	XGM-25-89	89-11-30	Sales Tap	146 000
	XGM-26-89	89-12-06	Meter Station Upgrade	210 500
	XGM-1-89	89-01-18	Plants, Warehouses Office Services, Mobile Equipment Replacements and Modifications	728 000
	XGM-7-89	89-05-19	Piping, Gas Flow Control Contactor, Aviation Equipment Replacement	7 909 000
	XGM-11-89	89-07-27	Valve, Control Systems, Overhead Crane, Boilers, Trucks	1 497 000
	XGM-16-89	89-10-05	Monitoring Equipment, Condensate Loop Extension, Float Engines, Instrumentation Upgrade	11 670 000
	XGM-21-89	89-11-23	Emergency Shut Down System, Discharge Gas Cooler, Fuel Control System, SCADA and MAOP Upgrades	30 980 000

Gas

4. Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Alberta and Southern Gas Co. Ltd.	GL-99	Kingsgate, BC.	1986-12-18	1987-10-31	31 897.2	9 340.9	77 626.5
			1987-11-01	1994-10-31	31 897.2	10 580.4	
	GL-111	Kingsgate, BC.	1994-11-01	2005-10-31	31 900.0	10 580.5	116 385.0
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	GL-105	Iroquois, Ont.	1988-11-01	2003-10-31	495.7	180.9	2 714.0
Alberta Northeast Gas Ltd. and ATCOR Ltd.	GL-104	Iroquois, Ont.	1988-11-01	2003-10-31	991.5	361.9	5 428.0
Alberta Northeast Gas Ltd. and ProGas Limited	GL-103	Iroquois, Ont.	1988-11-01	2003-10-31	1 869.6	682.4	10 236.0
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	GL-102	Iroquois, Ont.	1988-11-01	2003-10-31	7 506.9	2 740.0	42 646.0
		Niagara Falls, Ont.	1988-11-01	2003-10-31	283.3	103.4	
Amoco Canada Petroleum Company Ltd.	GL-112	Huntingdon, BC.	1989-07-24	1989-10-31	704.0	70.4	3 856.0
			1989-11-01	2004-10-31	704.0	257.0	
Amoco Canada Resources Limited	GL-108	Emerson, Man.	1989-03-16	1989-10-31	422.5	96.8	1 504.0
			1989-11-01	2001-10-31	422.5	154.0	
BC Gas Inc.	GL-123(a)	Huntingdon, BC.	1989-11-09	1992-04-30	1 703.0	61.3	184.0
Canadian Hunter Exploration Ltd.	GL-107	Niagara Falls & Iroquois, Ont.	1990-11-01	2010-10-31	845.0	254.0	3 381.0
Canadian-Montana Pipe Line Company	GL-25	Aden/Cardston, Alta, Emerson, Man. & Niagara Falls, Ont.	1968-11-01	1969-10-31	339.9	103.4	4 890.8
			1969-11-01	1991-10-31	679.9	206.8	
			1991-11-01	1993-10-31	390.9	119.0	
	GL-72	Aden, Alta.	1988-01-01	1988-10-31	1 133.1	236.1	1 085.7
			1988-11-01	1990-10-31	1 416.4	283.3	
			1990-11-01	1991-10-31	1 416.4	188.7	
			1991-11-01	1992-10-31	1 416.4	94.3	
	GO-3-79	Reagan Field, Alta.	1979-05-01	1993-12-31	30.0	10.3	105.0
Canterra Energy Ltd.	GL-113	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 099.1
			1989-11-01	2003-10-31	424.9	155.1	
	GL-114	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 246.4
			1989-11-01	2004-10-31	424.9	155.1	
Esso Resources Canada Limited	GL-82	Niagara Falls, Ont.	1984-02-05	1984-10-31	2 125.0	340.0	4 653.7
			1984-11-01	1988-10-31	2 125.0	775.6	
			1988-11-01	1989-10-31	2 125.0	745.9	
			1989-11-01	1990-10-31	850.0	310.2	
			1990-11-01	1991-10-31	425.0	155.1	

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
ICG Transmission Holdings Ltd.	GL-28	Sprague, Man.	1970-11-01	1995-10-31	80.3	9.5	229.0
	GL-29	Fort Frances, Ont.	1970-11-01	1995-10-31	915.6	218.5	5 462.2
	GL-30(b)	Sprague, Man.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
KannGaz Producers Ltd.	GL-77	Niagara Falls, Ont.	1987-11-01	1996-10-31	3 540.0	1 292.1	13 567.0
			1996-11-01	1997-10-31	2 655.0	969.1	
			1997-11-01	1998-10-31	1 770.0	646.0	
			1998-11-01	1999-10-31	885.0	323.0	
Many Islands Natural Gas (Canada) Limited	GL-44(c)	Emerson, Man.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
Niagara Gas Transmission Limited	GL-78	Cornwall, Ont.	1987-11-01	1990-10-31	1 200.0	275.0	1 099.7
			1990-11-01	1991-10-31	799.2	183.1	
			1991-11-01	1992-10-31	399.2	91.6	
Norcen Energy Resources Limited	GL-115	Emerson, Man.	1989-08-24	1989-10-31	396.6	27.4	1 841.0
			1989-11-01	2001-10-31	396.6	144.5	
	GL-116	Emerson, Man.	1989-08-24	1989-10-31	184.1	12.7	1 034.0
			1989-11-01	1994-10-31	184.1	67.2	
Pan-Alberta Gas Ltd.	GL-95	Emerson, Man. & Niagara Falls, Ont. combined maximum	1987-11-01	1996-10-31	4 332.5	1 581.4	16 604.7
			1996-11-01	1997-10-31	3 249.4	1 186.0	
			1997-11-01	1998-10-31	2 166.2	790.7	
			1998-11-01	1999-10-31	1 083.1	395.4	
		Maximum permitted at Niagara Falls, Ont. as part of combined Emerson/Niagara Falls volumes	1987-11-19	1996-10-31	1 442.7	526.6	
			1996-11-01	1997-10-31	1 082.1	394.9	
			1997-11-01	1998-10-31	721.3	263.3	
			1998-11-01	1999-10-31	360.7	131.7	
	GL-97	Monchy, Sask.	1984-12-20	1985-10-31	24 928.5	7 582.8	75 296.7
			1985-11-01	2001-10-31	24 928.5	8 294.4	
GL-106	Kingsgate, BC.		1988-11-01	2012-10-31	7 478.6	2 488.3	59 719.2
Poco Petroleums Ltd.	GL-117	Emerson, Man.	1989-08-24	1989-10-31	708.2	48.9	2 843.5
			1989-11-01	2000-10-31	708.2	258.5	
GL-118	Emerson, Man.		1989-08-24	1989-10-31	708.2	48.9	2 715.3
			1989-11-01	2000-10-31	708.2	258.5	
ProGas Limited	GL-80	Niagara Falls, Ont.	1987-11-01	1996-10-31	1 420.0	518.3	5 442.1
			1996-11-01	1997-10-31	1 065.0	388.7	
			1997-11-01	1998-10-31	710.0	259.1	
			1998-11-01	1999-10-31	355.0	129.6	

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
ProGas Limited (Cont'd)	GL-81	Emerson, Man.	1987-11-01	1990-10-31	5 270.0	1 923.5	15 026.7
			1990-11-01	1991-04-30	5 270.0	953.9	
			1991-05-01	1991-10-31	4 561.8	839.4	
			1991-11-01	1996-10-31	4 561.8	1 665.0	
			1996-11-01	1997-10-31	3 244.3	1 184.1	
			1997-11-01	1998-10-31	1 926.8	703.2	
			1998-11-01	1999-10-31	609.3	222.4	
	GL-98	Emerson, Man. & Monchy, Sask. combined maximum	1986-08-13	1986-10-31	9 440.9	2 583.2	35 492.8
			1986-11-01	1987-10-31	7 552.7	2 480.0	
			1987-11-01	2000-10-31	9 440.9	3 100.0	
		Maximum permitted at Monchy, Sask. as part of combined Emerson/Monchy volumes	1986-08-13	1986-10-31	6 797.4	2 480.0	17 746.4
			1986-11-01	1987-10-31	3 776.3	1 240.0	
			1987-11-01	2000-10-31	4 720.4	1 550.0	
	GL-101	Niagara Falls, Ont.	1989-05-01	1989-10-31	1 420.0	260.6	10 340.0
			1989-11-01	2009-10-31	1 420.0	517.0	
	GL-109	Niagara Falls & Iroquois, Ont.	1991-05-01	1991-10-31	708.2	130.3	5 170.0
			1991-11-01	2011-10-31	708.2	258.5	
Shell Canada Limited	GL-100	Highwater, Que.	1987-11-01	1998-10-31	1 110.0	300.0	5 900.0
			1998-11-01	1999-03-31	1 110.0	167.6	
		Niagara Falls, Ont.	1987-11-01	1998-10-31	1 390.0	400.0	
			1998-11-01	1999-03-31	1 390.0	209.9	
	GL-119	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 234.0
			1989-11-01	2003-10-31	424.9	155.1	
	GL-120	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 250.0
			1989-11-01	2004-10-31	424.9	155.1	
TransCanada PipeLines Limited	GL-20	Emerson, Man.	1967-11-01	1991-10-31	2 662.8	909.3	21 670.8
	GL-21(d)	Emerson, Man.	1968-11-05	1991-10-31	N/S	7 019.1	169 967.0
	GL-37	Emerson, Man.	1970-11-01	1990-10-31	5 546.6	2 030.1	40 601.0
	GL-38	Emerson, Man.	1970-11-01	1990-10-31	1 416.4	518.4	10 368.0
	GL-39	Emerson, Man.	1970-11-01	1990-10-31	204.0	74.6	1 493.0
	GL-42(d)	Emerson, Man.	1971-04-15	1971-10-31	N/S	232.8	60 316.5
			1971-11-01	1994-10-31	N/S	2 612.3	
	GL-43	Emerson, Man.	1971-11-01	1991-10-31	N/S	481.6	9 631.5

Gas

4. (cont'd) Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
TransCanada PipeLines Limited (Cont'd)	GL-83	Niagara Falls, Ont.	1984-11-01	1986-10-31	1 133.1	414.0	16 371.0
			1986-11-01	2002-10-31	2 620.3	959.0	
			2002-11-01	2003-01-15	2 620.3	199.1	
	GL-84	Niagara Falls, Ont.	1987-11-01	1988-10-31	142.0	51.8	2 378.0
			1988-11-01	1997-10-31	708.0	258.4	
	GL-86	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
			1998-11-01	1999-10-31	708.2	259.2	
	GL-87	Emerson, Man.	1987-11-01	1990-10-31	2 832.8	1 034.0	10 886.4
			1990-11-01	1991-10-31	2 832.8	1 036.8	
			1991-11-01	1994-10-31	2 832.8	1 034.0	
			1994-11-01	1995-10-31	2 832.8	1 036.8	
			1995-11-01	1996-10-31	2 832.8	1 034.0	
			1996-11-01	1997-10-31	2 188.7	798.9	
			1997-11-01	1998-10-31	1 416.4	517.0	
	GL-89	Emerson, Man.	1984-11-01	1985-10-31	6 317.1	524.1	12 960.8
			1985-11-01	1986-10-31	6 317.1	1 957.3	
			1986-11-01	1990-10-31	6 317.1	2 096.3	
			1990-11-01	1991-10-31	4 207.2	1 396.1	
			1991-11-01	1992-10-31	2 103.6	698.1	
	GL-90	Niagara Falls, Ont.	1987-11-01	1988-10-31	1 416.4	518.4	5 443.2
			1988-11-01	1991-10-31	1 416.4	517.0	
			1991-11-01	1992-10-31	1 416.4	518.4	
			1992-11-01	1995-10-31	1 416.4	517.0	
			1995-11-01	1996-10-31	1 416.4	518.4	
			1996-11-01	1997-10-31	1 091.3	398.3	
			1997-11-01	1998-10-31	708.2	258.5	
	GL-110	Niagara Falls & Iroquois, Ont.	1988-11-01	1991-10-31	354.1	129.2	
			1991-11-01	1999-10-31	708.2	258.5	
	GL-121	Emerson, Man.	1991-05-01	1991-10-31	708.2	130.3	5 443.2
			1991-11-01	2012-10-31	708.2	258.5	
	GL-122	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 326.5
			1989-11-01	2003-10-31	424.9	155.1	
	GL-122	Emerson, Man.	1989-08-24	1989-10-31	424.9	29.3	2 326.5
			1989-11-01	2004-10-31	424.9	155.1	

Gas

4. (cont'd)Licences and Long-Term Orders to Export Natural Gas as at 31 December 1989

Exporter	Licence or Order Number	Point of Export	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Union Gas Limited	GL-92	Windsor, Ont.	1985-11-01	1990-10-31	1 100.0	284.0	1 703.7
			1990-11-01	1991-10-31	732.6	189.1	
			1991-11-01	1992-10-31	366.3	94.6	
Westcoast Energy Inc.	GL-93	Huntingdon, BC.	1989-11-01	1992-10-31	8 498.3	3 101.9	13 958.6
			1992-11-01	1993-10-31	6 373.3	2 326.4	
			1993-11-01	1994-10-31	4 249.1	1 550.9	
			1994-11-01	1995-10-31	2 124.6	775.5	
	GL-94	Huntingdon/Kingsgate, BC. & Monchy, Sask. combined maximum	1989-11-01	1990-10-31	13 731.0	4 637.1	9 269.5
			1990-11-01	1991-10-31	9 144.8	3 088.3	
			1991-11-01	1992-10-31	4 572.4	1 544.1	
		Maximum permitted at Kingsgate, BC. as part of combined Huntingdon/ Kingsgate/Monchy volumes	1989-11-01	1990-10-31	2 832.8	1 034.0	
			1990-11-01	1991-10-31	2 832.8	1 034.0	
			1991-11-01	1992-10-31	2 832.8	1 036.8	
		Maximum permitted at Monchy, Sask. as part of combined Huntingdon/ Kingsgate/Monchy volumes	1989-11-01	1990-10-31	1 416.4	517.0	
			1990-11-01	1991-10-31	1 416.4	517.0	
			1991-11-01	1992-10-31	1 416.4	517.0	

a - This licence authorizes an export of natural gas at Huntingdon, B.C. for storage in the U.S. and for subsequent import through exchange arrangements with other exporters.

b - This licence authorizes an export of natural gas near Sprague, Manitoba for import near Rainy River, Ont.

c - This licence authorizes the export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.

d - This licence authorizes an export of natural gas near Emerson, Manitoba for import near Sault Ste-Marie and Sarnia, Ont., to serve the eastern Canadian Market.

N/S Not Specified

Gas

5. Licences and Long-Term Orders to Import Natural Gas as at 31 December 1989

Importer	Licence or Order Number	Point of Import	Term of Licence or Order		Maximum Volumes		
			From	To	Daily (10 ³ m ³)	Annual (10 ⁶ m ³)	Term (10 ⁶ m ³)
Canadian Western Natural Gas Company Limited	GO-117-88	Coutts, Alta.	1989-01-01	2005-12-31	30.0	N/S	N/S
ICG Transmission Holdings Ltd.	GL-30(a)	Rainy River, Ont.	1970-11-01	1995-10-31	1 321.8	344.0	8 498.1
Many Islands Natural Gas (Canada) Limited	GLI-5(b)	Willow Creek, Sask.	1972-03-15	1992-10-31	4 249.2	1 274.8	18 951.3
TransCanada PipeLines Limited	GL-21(c)	Sault Ste. Marie and Sarnia, Ont.	1968-11-05	1991-10-31	N/S	7 019.1	169 967.0
	GL-42(c)	Sault Ste. Marie and Sarnia, Ont.	1971-04-15	1971-10-31	N/S	232.8	60 316.5
			1971-11-01	1994-10-31	N/S	2 612.3	

a - This licence authorizes an import of natural gas which the licensee has exported near Sprague, Man.

b - This licence authorizes an import of natural gas which the licensee will subsequently export near Emerson, Manitoba, pursuant to Licence GL-44.

c - This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Manitoba. This natural gas serves Canadian markets.

N/S Not specified.

Gas

6. Licences and Long-Term Orders to Export and/or Import

Propane, Butanes, Ethane and Ethylene as at 31 December 1989

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes		
		Export	Import	From	To	Annual (m ³)	Term (m ³)	
PROPANE								
Amoco Canada Petroleum Company Ltd. (Export)	GL-32	Can/US Border (a)	-	1971-01-01	1972-12-31	92 698	4 281 799	
				1973-01-01	1973-12-31	569 761		
				1974-01-01	1974-12-31	519 682		
				1975-01-01	1975-12-31	506 190		
				1976-01-01	1976-12-31	483 571		
				1977-01-01	1977-12-31	456 825		
				1978-01-01	1993-12-31	92 698		
			1994-01-01	1994-12-31	77 206			
Dome Petroleum Limited (Export)	GL-31	Can/US Border (a)	-	1971-01-01	1972-12-31	133 254	9 757 486	
				1973-01-01	1973-12-31	924 999		
				1974-01-01	1974-12-31	870 078		
				1975-01-01	1975-12-31	847 301		
				1976-01-01	1976-12-31	812 936		
				1977-01-01	1977-12-31	775 793		
				1978-01-01	1978-12-31	744 761		
				1979-01-01	1979-12-31	716 983		
				1980-01-01	1980-12-31	688 571		
				1981-01-01	1981-12-31	656 190		
				1982-01-01	1982-12-31	620 476		
				1983-01-01	1986-12-31	133 254		
				1987-01-01	1987-12-31	143 809		
				1988-01-01	1988-12-31	193 016		
				1989-01-01	1989-12-31	196 984		
				1990-01-01	1990-12-31	169 047		
				1991-01-01	1991-12-31	165 873		
				1992-01-01	1992-12-31	165 079		
				1993-01-01	1993-12-31	162 098		
				1994-01-01	1994-12-31	103 968		
ETHANE								
Dome Petroleum Limited (Export)	GL-51 (b)(c)	Export-Elmore, Sask. Re-Export - Windsor, Ont.	Windsor, Ont.	1979-06-21	1979-12-31	1 287 000	19 069 000	
				1980-01-01	1980-12-31	1 090 000		
				1981-01-01	1981-12-31	935 000		
				1982-01-01	1982-12-31	1 114 000		
				1983-01-01	1983-12-31	1 241 000		
				1984-01-01	1984-12-31	1 424 000		
				1985-01-01	1985-12-31	2 000 000		
				1986-01-01	1986-12-31	2 731 000		
				1987-01-01	1987-12-31	2 304 000		
				1988-01-01	1988-12-31	1 891 000		
				1989-01-01	1989-12-31	1 301 000		
				1990-01-01	1990-12-31	765 000		
				1991-01-01	1991-12-31	602 000		
				1992-01-01	1992-12-31	280 000		
				1993-01-01	1993-12-31	104 000		

Gas

6. (cont'd) Licences and Long-Term Orders to Export and/or Import Propane, Butanes, Ethane and Ethylene as at 31 December 1989

Exporter	Licence or Order Number	Points of		Term of Licence or Order		Maximum Volumes	
		Export	Import	From	To	Annual (m ³)	Term (m ³)
ETHYLENE						Kilograms	
Dow Chemical of Canada Limited (Export)	EYL-1-76 (d)	Elmore, Sask. Sarnia, Ont. Windsor, Ont.	Sarnia, Ont. Windsor, Ont.	1980-01-01	1989-12-31	158 757 340	1 587 573 400
Dow Chemical of Canada Limited (Export/Import)	EYL-2-76 (d)	Elmore, Sask.	Windsor, Ont.	1978-01-01	1997-12-31	181 438 810	N/S

- a - For each licence or order the Canada/US Border export points include one or more of the following ports: Elmore, Sask., Gretna, Man., Sarnia and Windsor, Ont.
- b - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.
- c - Authorized exports of ethane in each year during the period 1982-01-01 to 1985-12-31 shall be reduced by the equivalent quantity of "make-up" volumes exported under Licence GL-47 which is in excess of 392 728 m³.
- d - This is an export licence which authorizes the export of ethylene at Elmore, Sask., and at Sarnia and Windsor, Ontario. All or a portion of the quantity of ethylene exported at Elmore, Sask., may be imported at Sarnia and Windsor, Ontario for subsequent re-export at Sarnia and Windsor, Ont.
- N/S Not specified

Gas

7. Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
AEC Oil and Gas Company	GO-98-89	.0	.1	.1
Alberta and Southern Gas Co. Ltd.	GL-99	10 819.9	10 856.9	32 539.3
Amoco Canada Petroleum Company Ltd.	GL-112	.0	27.9	27.9
	GO-104-86	2.0	.0	14.4
	GO-67-87	5.3	.0	5.3
	GO-80-88	28.6	143.4	172.1
	GO-122-89	.0	1.4	1.4
	GO-124-89	.0	25.6	25.6
Amoco Canada Resources Limited	GL-108	.0	49.2	49.2
	GO-14-86	.0	.0	.5
	GO-101-86	98.1	.0	212.1
	GO-15-87	8.2	17.8	42.1
	GO-16-87	54.9	.0	94.1
	GO-66-87	4.6	.0	4.6
	GO-94-88	23.4	101.8	125.1
	GO-95-88	.0	1.9	1.9
	GO-16-89	.0	81.2	81.2
BC Gas Inc.	GO-59-89(a)	.0	60.6	60.6
Bonanza Resources Ltd.	GO-58-86	.0	.0	15.0
	GO-59-86	.0	.0	17.0
Bonus Gas Processors Corp.	GO-78-86	13.8	.0	78.9
	GO-109-87	2.8	.0	2.8
	GO-88-88	.2	13.1	13.3
BP Resources Canada Limited	GO-68-88	26.5	7.0	33.5
	GO-24-89	.0	12.0	12.0
British Columbia Petroleum Corporation	GO-12-89	.0	457.4	457.4
	GO-104-89	.0	124.1	124.1
	GO-123-89	.0	281.5	281.5
Brymore Gas (Canada) Inc.	GO-80-86	.0	.0	12.3
	GO-88-89	.0	9.4	9.4
Canadian Hydrocarbons Limited	GO-14-87	21.0	.0	113.7
	GO-10-88	327.2	23.1	350.3
	GO-9-89	.0	269.5	269.5
Canadian Occidental Petroleum Ltd.	GO-102-87	4.9	.0	4.9
	GO-18-88	33.2	103.3	136.5
Canadian-Montana Pipe Line Company	GL-17	.0	.0	3 035.3
	GL-25	.0	.0	3 516.3
	GL-72	221.1	275.4	496.5
	GO-3-79	4.8	4.7	32.6

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Canterra Energy Ltd.	GL-113	.0	37.3	37.3
	GO-10-87	.1	.0	9.0
	GO-108-87	21.4	.0	21.4
	GO-14-88	18.8	51.7	70.6
	GO-70-89	.0	1.9	1.9
Carvin Natural Gas Marketing Ltd.	GO-114-88	8.0	92.9	100.9
Cherhill Resources Limited	GO-22-88	27.7	.0	27.7
Chevron Canada Resources Limited	GO-105-87	.8	.0	.8
	GO-21-88	1.4	.0	1.4
	GO-43-88	3.4	.0	3.4
	GO-86-88	3.7	.0	3.7
Consolidated Natural Gas Limited	GL-75	1 106.2	1 003.5	2 295.8
	GO-89-86	36.0	.0	246.4
	GO-92-86	97.6	.0	308.2
Czar Resources Ltd.	GO-30-86	24.5	.0	100.5
	GO-28-88	95.5	80.2	175.6
Dekalb Petroleum Corporation	GO-57-89	.0	48.2	48.2
Encor Energy Corporation Inc.	GO-107-87	1.1	.0	1.1
Esso Resources Canada Limited	GL-82	.0	.0	1 810.5
	GO-103-87	155.7	.0	155.7
	GO-26-88	36.1	.0	36.1
Esso Resources Canada Ltd. and Transco Energy Mark. Co.	GO-38-88	455.3	104.2	559.4
	GO-28-89	.0	235.4	235.4
	GO-117-89	.0	64.2	64.2
Grand Valley Gas Company	GO-112-89	.0	4.4	4.4
	GO-142-89	.0	2.1	2.1
Hadson Canada Inc.	GO-90-87	1.6	.0	1.6
ICG Transmission Holdings Ltd.	GL-28	.0	.0	129.7
	GL-29	.0	.0	2 690.3
	GL-30(b)	200.0	197.8	4 811.7
	GO-82-87	7.3	.0	9.4
	GO-83-87	88.9	.0	106.3
	GO-96-88	20.6	87.3	107.8
	GO-99-88	2.5	7.8	10.4
	GO-113-89	.0	3.4	3.4
	GO-115-89	.0	23.6	23.6
Imperial Oil Limited	GO-84-86(c)	79.3	.0	204.2
	GO-91-88(c)	.0	100.6	100.6

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
KannGaz Producers Ltd.	GL-77	46.5	117.5	172.6
	GO-34-89	.0	7.8	7.8
	GO-75-89	.0	11.4	11.4
KM Gas Company	GO-81-86	3.4	.0	37.2
	GO-37-89	.0	.8	.8
Koch Hydrocarbons Canada	GO-101-87	5.5	.0	5.5
Many Islands Natural Gas (Canada) Limited	GL-44(d)	421.0	410.2	6 976.2
Mobil Oil Canada	GO-9-88	2.0	.0	2.0
	GO-11-88	480.3	656.6	1 136.9
	GO-102-88	.0	3.8	3.8
	GO-139-89	.0	2.0	2.0
Niagara Gas Transmission Limited	GL-78	233.1	239.0	518.3
Norcen Energy Resources Limited	GL-115	.0	39.2	39.2
	GO-51-89	.0	4.3	4.3
North Canadian Oils Limited	GO-65-88	9.3	56.2	65.4
	GO-69-89	.0	16.2	16.2
Northcan Energy Inc.	GO-30-88	6.1	18.8	24.9
	GO-3-89	.0	379.8	379.8
Northridge Petroleum Marketing, Inc.	GO-79-89(e)	.0	13.2	13.2
	GO-80-89	.0	.2	.2
Northwest Pacific Energy Marketing Inc.	GO-115-88	4.7	109.1	113.9
Pan-Alberta Gas Ltd.	GL-96	2 148.6	.0	9 820.5
	GL-97	3 082.9	2 806.8	13 670.3
	GL-106	414.8	2 480.2	2 895.0
	GO-48-87	3 703.2	1 954.6	7 711.3
	GO-8-88	311.2	58.1	369.3
	GO-67-89	.0	2 129.6	2 129.6
Petro-Canada Inc.	GO-22-87	.0	.0	4.7
	GO-17-88	269.8	.0	269.8
	GO-113-88	.0	60.2	60.2
	GO-25-89	.0	187.1	187.1
Placer Cego Petroleum	GO-19-87	4.5	.0	31.3
	GO-115-87	1.8	.0	1.8
	GO-15-88	37.9	51.7	89.6
	GO-15-89	.0	13.6	13.6

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Poco Petroleum Ltd.	GO-87-86	477.8	.0	817.0
	GO-88-86	19.9	.0	29.9
	GO-72-87	4.0	43.9	49.5
	GO-74-87	124.0	.0	135.9
	GO-110-88	60.2	560.3	620.5
	GO-53-89	.0	21.7	21.7
ProGas Limited	GL-98	1 589.0	1 718.1	4 059.1
	GO-85-87	192.3	.0	322.0
	GO-24-88	3.4	.0	3.4
	GO-118-89	.0	47.5	47.5
	GO-127-89	.0	3.7	3.7
Sceptre Resources Limited	GO-81-89	.0	.1	.1
Shell Canada Limited	GL-100	63.5	194.7	264.5
	GL-119	.0	44.9	44.9
	GO-105-86	229.6	.0	454.3
	GO-4-88	.1	.0	.1
	GO-16-88	1.3	21.9	23.2
	GO-25-88	96.1	324.7	420.9
	GO-119-88	.0	140.5	140.5
	GO-63-89	.0	2.9	2.9
Suncor Inc.	GO-112-87	78.7	65.9	144.6
	GO-29-89	.0	201.5	201.5
	GO-39-89	.0	.1	.1
Tarpon Gas Marketing Ltd.	GO-2-88	1.1	.0	1.1
TransCanada PipeLines Limited	GL-18	.0	.0	20 552.8
	GL-19	156.5	131.3	2 522.3
	GL-20	588.3	.0	14 384.7
	GL-21(f)	6 821.6	6 680.4	124 227.2
	GL-37	1 252.9	170.3	29 194.0
	GL-38	.0	.0	6 770.7
	GL-39	.0	.0	915.0
	GL-42(f)	2 538.8	2 486.3	40 070.1
	GL-43	.0	451.4	1 787.3
	GL-83	915.5	943.0	3 100.3
	GL-84	19.1	36.0	55.0
	GL-86	.0	.8	.8
	GL-87	.0	.8	.8
	GL-89	.0	.0	604.0
	GL-121	.0	44.7	44.7
	GO-40-86	190.1	.0	374.5
	GO-103-86	208.6	.0	689.9
	GO-27-87	6.8	.0	40.0
	GO-37-87	2 507.8	1 332.6	4 503.2
	GO-111-87	363.4	280.7	644.1
	GO-23-88	111.4	26.6	138.0
	GO-11-89	.0	162.1	162.1
	GO-14-89	.0	11.4	11.4

Gas

7. (cont'd) Exports of Natural Gas (Millions of Cubic Metres)

Exporter	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
TransCanada PipeLines Limited(cont'd)	GO-50-89	.0	2 734.7	2 734.7
	GO-108-89	.0	46.1	46.1
	GO-147-89	.0	.8	.8
Unigas Corporation	GO-19-89	.0	66.9	66.9
	GO-93-89	.0	171.8	171.8
Union Enterprises Ltd.	GO-4-87(g)	.0	.0	3.9
Unocal Canada Limited	GO-75-88	6.1	.0	6.1
Wainoco Oil Corporation	GO-55-87	42.8	.0	46.1
	GO-120-89	.0	18.2	18.2
Westcoast Energy Inc.	GL-41	1 909.1	1 545.0	80 071.8
Westcoast Energy Marketing	GO-44-89	.0	37.4	37.4
	GO-116-89	.0	166.5	166.5
Western Gas Marketing Limited	GO-63-88	28.2	.1	28.4
GROSS EXPORTS		45 988.7	47 861.0	445 777.5
NET EXPORTS(h)		35 928.0	37 911.9	269 309.9

a - This order authorizes an export of natural gas for storage in the U.S. and for subsequent import through exchange arrangements with other exporters.

b - This licence authorizes an export of natural gas near Sprague, Man. for import near Rainy River, Ont.

c - This order authorizes an export of natural gas near Emerson, Man. in exchange for an import of ethane by Dome Petroleum Limited and Amoco Canada Petroleum Company Ltd. near Sarnia, Ont.

d - This licence authorizes an export of natural gas which the licensee has imported near Willow Creek, Sask. pursuant to Licence GLI-5.

e - This order authorizes an export of natural gas for subsequent import on order GO-92-89.

f - This licence authorizes an export of natural gas near Emerson, Man. for import near Sault Ste. Marie and Sarnia, Ont. to serve eastern Canadian markets.

g - This order authorizes an export of natural gas which was imported on order GO-3-87 for storage in Canada.

h - Excludes volumes of licences/orders under footnotes.

Gas

8. Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Access Energy Corporation	GO-102-89	.0	3.5	3.5
Atcor Ltd.	GO-89-89	.0	14.9	14.9
BC Gas Inc.	GO-105-88(a)	.2	59.8	60.0
	GO-30-89(a)	.0	.7	.7
	GO-59-89(b)	.0	1.1	1.1
Border Utilities Ltd.	GO-8-86	.7	.0	2.1
Canadian Western Natural Gas Company Limited	GO-56-87	.2	.0	.2
	GO-70-88	.2	1.0	1.2
	GO-117-88	.0	.8	.8
	GO-87-89	.0	.5	.5
ICG Transmission Holdings Ltd.	GL-30(c)	200.0	197.8	4 811.7
ICG Utilities (Ontario) Ltd.	GO-103-89	.0	15.1	15.1
Many Islands Natural Gas (Canada) Limited	GLI-5(d)	425.6	416.4	7 080.4
Natural Resource Gas Limited	GO-77-89	.0	3.4	3.4
Northridge Petroleum Marketing, Inc.	GO-45-88	.9	.0	.9
	GO-92-89(e)	.0	13.2	13.2
St. Clair Pipelines Ltd.	GO-71-88	35.8	20.6	56.4
	GO-109-88	.0	58.8	58.8
	GO-47-89	.0	60.0	60.0
	GO-111-89	.0	20.4	20.4
Tarpon Gas Marketing Ltd.	GO-94-89	.0	18.5	18.5
The Consumers' Gas Company Ltd.	GO-40-88	8.1	.0	8.1
	GO-57-88	27.2	.0	27.2
	GO-40-89	.0	8.8	8.8
	GO-41-89	.0	29.2	29.2
	GO-97-89	.0	46.3	46.3
TransCanada PipeLines Limited	GL-21(f)	6 821.6	6 680.4	124 168.3
	GL-42(f)	2 538.8	2 486.3	40 142.6
Unigas Corporation	GO-121-89	.0	3.2	3.2
Union Enterprises Ltd.	GO-3-87(g)	.0	.0	3.9
	GO-121-87	54.0	.0	54.0
	GO-41-88	51.7	.0	51.7
Union Gas Limited	GO-65-87	.0	.0	56.7
	GO-84-87	.6	.0	14.3
	GO-39-88	60.0	.0	60.0
	GO-50-88	60.0	.0	60.0
	GO-61-88	1.3	.0	1.3

Gas

8. (cont'd) Imports of Natural Gas (Millions of Cubic Metres)

Importer	Licence or Order Number	1988	1989	Cumulative to 31 December 1989
Union Gas Limited (Cont'd)	GO-66-88	60.0	.0	60.0
	GO-77-88	60.0	.0	60.0
	GO-100-88	60.0	.0	60.0
	GO-103-88	60.0	.0	60.0
	GO-118-88	3.5	56.5	60.0
	GO-7-89	.0	44.4	44.4
	GO-31-89	.0	60.0	60.0
	GO-45-89	.0	60.0	60.0
	GO-52-89	.0	60.0	60.0
	GO-60-89	.0	60.0	60.0
	GO-61-89	.0	60.0	60.0
	GO-62-89	.0	1.1	1.1
	GO-66-89	.0	60.0	60.0
	GO-71-89	.0	60.0	60.0
	GO-76-89	.0	60.0	60.0
	GO-86-89	.0	45.6	45.6
	GO-91-89	.0	60.0	60.0
	GO-95-89	.0	22.9	22.9
	GO-110-89	.0	53.2	53.2
	GO-136-89	.0	4.6	4.6
Western Gas Marketing Limited	GO-59-88	69.9	23.4	93.3
	GO-101-88	.0	51.0	51.0
	GO-90-89	.0	12.4	12.4
GROSS IMPORTS		10 600.2	11 015.8	178 127.8
NET IMPORTS (h)		614.0	1 173.3	1 859.1

- a - This order authorizes an import of natural gas at Huntingdon, B.C. previously exported by Westcoast on behalf of the order holder.
- b - This order authorizes the import of natural gas at Huntingdon, B.C. which the holder has previously exported for storage in the U.S. The import occurs through exchange arrangements with other exporters.
- c - This licence authorizes an import of natural gas which the licensee has previously exported near Sprague, Man.
- d - This licence authorizes an import of natural gas for subsequent export near Emerson, Man. pursuant to licence GL-44.
- e - This order authorizes an import of natural gas which was previously exported under order GO-79-89.
- f - This licence authorizes an import of natural gas which the licensee has previously exported near Emerson, Man. This natural gas serves Canadian markets.
- g - This order authorizes an import of natural gas for storage in Canada for subsequent export near Windsor, Ont. on order GO-4-87.
- h - Excludes volumes of licences/orders under footnotes.

Gas

9. Exports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders
(Cubic Metres)

Exporter	Licence or Order Number	1988 Actual	1989 Preliminary
PROPANE			
Amoco Canada Petroleum Company Limited	GL-32	92 697	92 698
Dome Petroleum Limited	GL-31	193 016	196 984
NET EXPORTS (c)		285 713	289 682

ETHANE			
Dome Petroleum Limited	GL-51(a)	871 841	744 248
GROSS EXPORTS		871 841	744 248
NET EXPORTS (c)		0	0

Kilograms			
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (b)	151 660 454	161 089 355
GROSS EXPORTS		151 660 454	161 089 355
NET EXPORTS (c)		0	0

- a - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.
- b - This licence/order authorizes an export of product for subsequent import.
- c - Excludes volumes of licences under footnotes .

Gas

10. Imports of Propane, Butanes, Ethane and Ethylene Under Licences and Orders (Cubic Metres)

Importer	Licence or Order Number	1988 Actual	1989 Preliminary
ETHANE			
Dome Petroleum Limited	GL-51(a)	917 227	623 021
	GO-8-89 (c)	N/A	100 337
	GO-64-89(c)	N/A	93 532
	GO-44-87 (c)	N/A	N/A
	GO-114-87 (c)	119 991	N/A
	GO-60-88 (c)	119 241	N/A
GROSS IMPORTS		1 156 459	816 890

Kilograms			
ETHYLENE			
Dow Chemical of Canada Limited	EYL-1-76	0	0
	EYL-2-76 (b)	151 660 454	161 089 355
GROSS IMPORTS		151 660 454	161 089 355
NET IMPORTS (d)		0	0

- a - This is an export licence which authorizes the export of ethane at Elmore, Sask., and Windsor, Ont. All or a portion of the quantity of ethane exported at Elmore, Sask., may be imported at Windsor, Ont., for subsequent re-export at Windsor, Ont.
- b - This licence/order authorizes an import of product which has been previously exported.
- c - This order authorizes an import of ethane at Sarnia, Ont. in exchange for natural gas exported at Emerson, Man. by Imperial Oil Limited.
- d - Excludes volumes of licences /orders under footnotes.

N/A Not Applicable

Gas

11. Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butanes	
	1988 Actual	1989 Preliminary	1988 Actual	1989 Preliminary
Amoco Canada Petroleum Company Ltd. (a)	424 767	1 921 000	399 990	1 161 900
Atlantic Speedy Propane Limited	2 684	2 400	N/A	N/A
Burnwell Gas of Canada Ltd.	40 934	31 200	N/A	N/A
Canadian Enterprise Gas Products Ltd.	10 379	20 000	30 884	40 500
CanPet Marketing Ltd.	14 078	6 400	11 154	9 200
CanStates Energy	65 112	35 000	129 058	193 300
Chevron Canada Resources	29 233	5 100	1 588	4 100
Commonwealth Petroleum Co.	25 293	30 000	N/A	N/A
Consumers' Co-Operative Refineries Ltd.	3 038	100	6 636	0
Dome Petroleum Limited (a)	1 309 277	N/A	772 540	N/A
Dominion Propane Corp.	112	0	0	0
Elbow River Resources Ltd.	0	100	9 649	1 200
Elgin Resources Limited	6 622	1 730	122	0
Energy Transportation Inc.	31 640	15 000	18 511	20 400
Enron Liquids Marketing Canada Ltd.	14 364	12 900	12 488	8 800
Ferrell Petroleum Inc.	31 746	3 967	N/A	N/A
Ferrell Gas	N/A	1 588	N/A	N/A
Gas Supply (Minneapolis) Ltd.	N/A	0	N/A	N/A
Gibson Gas Liquids Ltd.	8 546	3 100	15 106	2 400
Gulf Canada Resources Ltd.	65 151	84 000	58 805	104 000
Home Oil Company Limited	20 086	46 200	20 321	68 600
Husky Oil Operations Ltd.	0	0	0	0
ICG Liquid Gas Ltd.	46 272	22 200	0	0
Imperial Oil Limited	213 144	238 500	394 671	274 300
Irving Oil Limited	5 516	0	20 039	0
Kildair Service Ltd.	387	0	0	0
Koch Hydrocarbon Canada	3 938	700	28 599	20 000
L.H.H. Enterprises Ltd.	580	0	0	0
L.P.G. Resources Canada Inc.	120	0	22 936	2 000
M-P. Oils Ltd	31 780	54 800	1 609	11 400
Mobil Oil Canada	77 106	70 100	115 869	51 800
Newfoundland Processing Ltd.	0	0	0	0
NGL Supply (1985) Ltd.	19 444	26 700	0	10 500
Olco Petroleum Group Inc.	0	0	0	N/A
PanCanadian Gas Products Ltd. (a)	111 389	137 500	134 211	94 700
Petro-Canada Hydrocarbons Inc.	604 134	534 700	319 757	290 500
Petrogas Marketing Ltd.	7 601	13 900	7 850	5 300
Petromont Inc.	8 381	25 300	13 448	5 500
Petrowest Petroleum Ltd.	118 188	43 100	14 920	16 300
Phillips 66 Company	N/A	0	N/A	N/A
Rivecal Energy Ltd.	0	0	0	0
Shell Canada Products Ltd.	167 289	166 700	226 940	129 300
Stittco Energy Ltd.	5 527	8 100	2 050	3 000
Suncor Inc.	0	3 200	39 708	5 700
Superior Propane Inc.	0	0	N/A	N/A
Texaco Canada Inc.	58 541	48 500	38 188	32 300

Gas

11. (cont'd) Total Net Exports of Propane and Butanes (Cubic Metres)

Exporter	Propane		Butanes	
	1988 Actual	1989 Preliminary	1988 Actual	1989 Preliminary
Texaco Producing Inc.	15 396	1 400	N/A	N/A
Turbo Resources Ltd.	N/A	0	N/A	0
Unocal Canada Ltd.	5 808	1 300	9 608	10 500
Ultramar Canada Inc.	0	0	N/A	0
Westcan Energy Ltd.	43 038	21 500	7 446	3 500
TOTAL	3 693 641	3 637 985	2 884 701	2 581 000

a - Includes net export volumes under licences.

N/A Not Applicable

Gas

12. Natural Gas Volumes Authorized for Export (Millions of Cubic Metres)

New Licences Issued and Extensions to Existing Licences	Volume 1987	Number of Years	Volume 1988	Number of Years	Volume 1989	Number of Years
Alberta and Southern Gas Co. Ltd.					116 385.0 (a)	11
Alberta Northeast Gas Ltd. and AEC Oil and Gas Company	2 714.0	15				
Alberta Northeast Gas Ltd. and ATCOR Ltd.	5 428.0	15				
Alberta Northeast Gas Ltd. and ProGas Limited	10 236.0	15				
Alberta Northeast Gas Ltd. and TransCanada PipeLines Limited	42 646.0 (a)	15				
Amoco Canada Petroleum Co. Ltd.					3 856.0	15
					4 778.0	14
B.C. Gas Inc.					184.0	3
Canadian Hunter Explorations Ltd.			3 381.0	20		
Canterra Energy Ltd.					2 099.1	14
					2 246.4	15
Dome Petroleum Limited			1 504.0	12		
Esso Resources Canada Ltd.					144 000.0	20
Gulf Canada Resources Ltd.					91 000.0	20
ICG Transmission Holdings Ltd.					3 150.0 (b)	15
Norcen Energy Resources Limited					2 875.0	12
Pan-Alberta Gas Ltd.			59 719.2 (c)	24		
Poco Petroleums Ltd.					5 558.8	11
ProGas Limited	10 340.0	20	5 170.0 (a)	20	15 665.3 (a)	15
					23 315.0	6
Shell Canada Limited					2 234.0 (d)	14
					2 250.0 (d)	15
					25 000.0	20
TransCanada PipeLines Limited			5 443.2 (a)	21	2 326.5	14
					4 146.5	15
					6 307.0	7

a - Does not include any incremental volumes.

b - Export volumes authorized on condition of re-import.

c - Only $45.6 \times 10^9 \text{ m}^3$ represents incremental volumes.

d - Of the total $4484 \times 10^6 \text{ m}^3$ authorized under the two licences, $3284 \times 10^6 \text{ m}^3$ is incremental volumes.

Electricity

1. Certificates Issued During 1989 Approving International Power Lines

No Certificates were issued in 1989

Electricity

2. Orders Issued During 1989 Relating to International Power Lines

Applicant	Order No.	Issued	Facilities
Hydro-Québec	XE-1-89	89-07-20	One international power line extending from the distribution transformer designated as M2KIC, to a point on the international boundary line located in the municipality of Saint-Théophile. This single-circuit single-phase line, designated LIN 234, operates at a nominal voltage of 120/240 volts .
James R. McMurrich	XE-2-89	89-12-15	One international power line extending from the boundary line between Canada and the United States of America near Sundown Island, Ontario. This line will be used to import electricity from Niagara Mohawk Power Corporation to supply electric service to Sundown Island. This single-circuit single-phase line operates at a nominal voltage of 7.6 kV.

Electricity

3. Licences Issued During 1989 Relating to the Export of Electricity

Applicant	Licence No.	Class	Megawatts	Annual Gigawatt Hours	Term		Hearing Commenced	Issued
					From	To		
Hydro-Québec	EL-178	Firm	800	3 000	91-06-23	98-10-31	89-05-16	89-07-25

Electricity

4. Orders Issued During 1989 Relating to the Export of Electricity

4(a) Orders issued pursuant to Section 7 of the Part VI Regulations.

Applicant	Order No.	Class	Kilowatts	Annual Megawatt Hours	Term		Issued
					From	To	
Boise Cascade Canada Ltd.	ELO-265	Interruptible	-	175 000	89-07-01	92-06-30	89-06-08
Canadian Niagara Power Company Limited	ELO-256	Firm	45 000	32 850	89-01-26	89-10-31	89-01-26
	ELO-257	Interruptible	-	500 000	89-01-26	89-10-31	89-01-26
	ELO-269	Carrier Transfer	50 000	250 000	89-11-01	92-10-31	89-09-28
	ELO-270	Interruptible	-	200 000	89-11-01	92-10-31	89-09-28
Cornwall Electric	ELO-264	Carrier Transfer	-	50 000	89-07-01	89-10-31	89-05-25
	ELO-267	Interruptible	-	30 000	89-11-01	92-10-31	89-09-28
	ELO-268	Carrier Transfer	-	30 000	89-11-01	92-10-31	89-09-28
The Manitoba Hydro- Electric Board	ELO-260	Firm	12	15	89-08-01	92-07-31	89-05-08
New Brunswick Power	ELO-258	Firm	60 000	350 400	89-03-01	89-10-31	89-02-28
	ELO-259	Firm	15 000	24 240	89-04-01	89-10-31	89-03-30
	ELO-261	Firm	48 000	211 968	89-05-01	89-10-31	89-04-28
	ELO-262	Firm	12 000	52 992	89-05-01	89-10-31	89-04-28
	ELO-263	Firm	27 000	63 960	89-04-01	89-09-30	89-04-28
	ELO-266	Firm	25 000	73 200	89-08-01	89-11-30	89-07-27
	ELO-271	Firm	60 000	43 200	89-11-01	89-11-30	89-10-27
	ELO-272	Firm	60 000	43 200	89-11-01	89-11-30	89-10-27

4(b) Amending orders issued relating to export licences or orders

Applicant	Order No.	Issued	Comments
British Columbia Hydro and Power Authority	AO-3-EL-162	89-03-28	Amendment extending the term of the licence to 30 September 1990 .
Hydro-Québec	AO-1-EL-168	89-10-26	Amendment authorizing export over any international power line authorized by the Board.
Canadian Niagara Power Company Limited	AO-1-ELO-256	89-09-28	Amendment extending the term of the licence by one month .
	AO-1-ELO-257	89-09-28	Amendment extending the term of the licence by one month .

Electricity

5. Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
NEW BRUNSWICK								
Fraser Inc.	ELO-214	400 000	--	305 310	--	--	17 029 998	--
Maine and New Brunswick Electrical Power Company, Limited	EL-177	200 000	--	76 423	--	--	2 296 864	--
New Brunswick Power	EL-137	876 000	--	827 160	--	- 7 293	45 318 170	--
	EL-138	876 000	--	827 160	--	- 7 293	49 763 206	--
	EL-139	92 000	--	53 542	--	- 2 918	3 346 874	--
	EL-140	--	6 482 400(b)	--	1 962 137	- 1 748	--	64 844 839
	EL-141	1 226 400	--	--	--	190 523	--	--
	EL-142	140 000	--	--	--	--	--	--
	EL-143	--	300 000	--	88 197	358	--	3 472 828
	EL-144	250 000	--	--	--	17 904	--	--
	EL-145	--	179 000	--	4 874	- 1 684	--	182 608
	EL-150	1 138 000	--	206 790	--	- 1 823	12 440 806	--
	ELO-228	250 000	--	--	--	--	--	--
	ELO-244	--	--	--	--	--	--	--
to	ELO-246	445	--	286	--	--	25 101	--
	ELO-247	400 000	--	46 140	--	--	5 727 804	--
	ELO-250	400 000	--	8 640	--	--	2 879 639	--
	ELO-258	350 400	--	34 380	--	--	4 321 147	--
	ELO-259	24 240	--	2 209	--	--	361 629	--
	ELO-261	211 968	--	1 739	--	--	1 517 513	--
	ELO-262	52 992	--	435	--	--	381 209	--
	ELO-263	63 960	--	8 034	--	--	838 463	--
	ELO-266	73 200	--	213	--	--	458 000	--
	ELO-271	43 200	--	180	--	--	265 353	--
	ELO-272	43 200	--	180	--	--	265 353	--
TOTAL				2 398 821	2 055 208	186 026	147 237 129	68 500 275

Electricity

5. (cont'd) Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
QUEBEC								
Hydro-Québec	EL-96	3 000 000	--	3 000 000	--	--	94 869 179	--
	EL-151	--	11 000 000	--	303 714	--	--	8 695 585
	EL-152	--	23 564 000(c)	--	38 261	62 753	--	914 038
	EL-153	--	23 564 000(c)	--	71 611	- 336 160	--	4 627 591
	EL-154	11 220 000	--	105 047	--	--	3 307 563	--
	EL-156	25 000	--	--	--	--	--	--
	EL-165	--	3 000 000	--	--	31 729	--	--
	EL-166	--	4 000 000	--	349 364	--	--	8 654 209
	EL-167	--	6 920 000(d)	--	11 859	- 26 674	--	1 146 571
	EL-168	1 314 000	--	1 011 679	--	--	45 492 077	--
	EL-169	--	1 752 000(e)	--	--	358	--	--
	EL-171	230 600	--	81 904	--	--	3 766 169	--
	EL-172	657 000(f)	--	21 194	--	--	957 228	--
	EL-175	438 000	--	410 560	--	--	9 146 933	--
	ELO-223	--	946 000(g)	--	1 053	--	--	116 887
	ELO-224	400 000	--	--	--	--	--	--
	ELO-220							
	to ELO-222							
	and ELO-230							
	to ELO-237	3 597	--	897	--	--	52 166	--
ELO-254	51 300	--	47 113	--	--	1 986 479	--	
ELO-255	400 000	--	251 564	--	--	10 427 628	--	
TOTAL				4 929 958	775 862	- 267 994	170 005 422	24 154 881

Electricity

5. (cont'd) Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
ONTARIO								
Boise Cascade	ELO-211 *	--	70 000	--	75	--	--	2 605
Canada Ltd.	ELO-265	--	175 000	--	--	--	--	--
Canadian Niagara Power Company Limited	EL-161 *	--	500 000	--		2 617	--	
	ELO-253 *	--	328 500	--	232 729	9 124	--	7 800 798
	ELO-256 *	32 850		--	--	--	--	--
	ELO-257 *	--	500 000	--	--	1 445	--	--
	ELO-269	--	250 000	--	--	48 651	--	--
	ELO-270	--	200 000	--	9 715	2 380	--	296 579
The Canadian Transit Company	ELO-239	25	--	24	--	--	--	--
Cornwall Electric	EL-158 *	--	250 000	--	--	57 453	--	--
	EL-159 *	--	150 000	--	2 223	--	--	58 989
	EL-160 *	--	150 000	--	--	38 514	--	--
	ELO- 229 *	--	300 000	--	249 615	--	--	6 541 654
	ELO- 264 *	--	50 000	--	--	5 193	--	--
	ELO- 267	--	30 000	--	38	--	--	1 089
	ELO- 268	--	30 000	--	--	--	--	--
The Detroit and Windsor Subway Company	ELO-252	2 000	--	1 225	--	--	--	--
Ontario Hydro	EL-32	15 000	--	904	--	--	1 808	--
	EL-134	--	10 000 000	--	--	1 361 089	--	--
	EL-135	10 500 000	--	328 236	--	--	13 854 953	--
	EL-136	--	25 000 000(h)	--	1 889 529	72 920	--	72 984 579
	ELO-238	200	--	21	--	--	1 602	--
TOTAL				330 410	2 383 924	1 599 386	13 858 363	87 686 293
MANITOBA								
The Manitoba Hydro-Electric Board	EL-97	--	1 800 000	--	365 276	--	--	4 327 276
	EL-98	876 000	--	97 075	--	--	4 667 451	--
	EL-99	262 800	--	143 220	--	--	2 694 822	--
	EL-100	800 000	--	--	--	--	--	--
	EL-101	2 500 000	--	--	--	--	--	--
	EL-102	249 000	--	--	--	--	--	--
	EL-103	--	12 000 000(i)	--	620 045	56 065	--	12 699 350
	ELO-241	--						
and	ELO-260	7 899	--	2 549	--	--	111 455	--
TOTAL				242 844	985 321	56 065	7 473 728	17 026 626

Electricity

5. (cont'd) Exports (Megawatt Hours)

Exporter	Licence Number	Licence Authorization		Gross Energy Exported			Value of Export (\$)	
		Firm	Interruptible	Firm	Interruptible	Exchange(a)	Firm	Interruptible
SASKATCHEWAN								
Saskatchewan	EL-118	438 000(j)	--	--	--	31 800	--	--
Power Corporation	EL-119	--	876 000(k)	--	9 818	30 094	--	181 644
	EL-120	876 000(k)	--	--	--	--	--	--
TOTAL				--	9 818	61 894	--	181 644
BRITISH COLUMBIA								
British Columbia	EL-162	6 000 000	--	459 376	--	--	11 314 278	--
Hydro and Power	EL-163	--	15 000 000(l)	--	3 523 612	953 410	--	105 568 507
Authority	EL-164	--	3 000 000	--	--	714 113	--	--
	ELO-225	--	--	--	--	--	--	--
and	ELO-251	17 100	--	16 641	--	--	776 633	--
	m	--	--	--	--	323 230	--	--
Cominco Ltd.	ELO-216	50 000	--	--	--	--	--	--
	ELO-217	250 000	--	--	--	--	--	--
	ELO-218	--	1 000 000	--	349 897	680	--	7 573 407
	ELO-219	--	1 000 000	--	--	--	--	--
West Kootenay	ELO-227	50	--	8	--	--	496	--
Power and Light Company, Limited								
TOTAL				476 025	3 873 509	1 991 433	12 091 407	113 141 914
TOTAL CANADA(n)				8 378 058	10 083 642	3 626 810	350 666 049	310 691 633

- a - Exchange includes inadvertent and circulating flow, equichange, storage, adjustment transfer, and wheeling or carrier transfer and normally does not have associated revenue.
- b - Total exports should not exceed 6 482.4 GW.h less any amounts exported pursuant to another licence or order under which the energy is transmitted over the line authorized by Certificate EC-III-8.
- c - Total exports should not exceed 23 564 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by Certificates EC-III-15 and EC-10.
- d - Total exports should not exceed 6 920 GW.h less any amounts exported pursuant to another licence under which the energy is transmitted over the lines authorized by Certificate EC-III-21.
- e - Total exports should not exceed 1 752 GW.h less any amounts exported under Licence EL-168.
- f - Total exports should not exceed 657 GW.h less any amounts exported under Licence EL-171 and Orders ELO-223 and ELO-224.
- g - Total exports should not exceed 946 GW.h less any amounts exported under Licences EL-171, EL-172 and Order ELO-224.
- h - Total exports should not exceed 25 000 GW.h less any amounts exported under Licence EL-135.
- i - Total exports should not exceed 12 000 GW.h less any amounts exported under Licences EL-97, EL-98, EL-99, EL-100, EL-101 and EL-102.
- j - Energy to be returned.
- k - Total exports under Licences EL-119 and EL-120 should not exceed 876 GW.h. when combined together.
- l - Total exports should not exceed 15 000 GW.h less any amounts exported under Licence EL-162.
- m - Energy exported in accordance with the Skagit River Valley Treaty which is not under the Board's jurisdiction.
- n - Excludes \$7 112 514 revenue for wheeling, transmission, unit rental and storage transfer charges.
- * Expired during 1989.

Electricity

6. Electricity Trade Between Canada and the United States (a) (By Province, Gigawatt Hours)

PROVINCE	REGION / STATE	EXPORT (b)	IMPORT (c)	NET EXPORT (b) - (c)
New Brunswick	Maine	2505	57	2448
	Massachusetts	1862	0	1862
	New Hampshire	89	0	89
	Total New Brunswick	4456	57	4399
Quebec	Massachusetts	102	0	102
	Vermont	1868	0	1868
	New England (d)	361	265	96
	New York	3413	998	2415
Total Quebec		5744	1263	4481
Ontario	Vermont	328	0	328
	New York	2331	231	2100
	Michigan	15	5440	-5425
	Minnesota	0	176	-176
Total Ontario		2674	5847	-3173
Manitoba	Minnesota	1122	1122	0
	North Dakota	106	396	-290
Total Manitoba		1228	1518	-290
Saskatchewan	North Dakota	10	57	-47
Alberta	Montana	0	3	-3
British Columbia	Montana	9	0	9
	Washington	1835	0	1835
	Oregon	875	0	875
	California	1597	0	1597
	Other (e)	34	0	34
Total British Columbia		4350	0	4350
TOTAL		18462	8745	9717

Notes: a - Sales and purchases only; excludes exchanges.

b - Sales to the United States.

c - Purchases from the United States.

d - Trade with the New England Power Pool - quantities to each state cannot be accurately determined.

e - Includes Idaho, Nevada and Utah.

Electricity

7. Electricity Trade Between the United States and Canada (a) (By American Region / State, Gigawatt Hours)

REGION / STATE	PROVINCE	IMPORT (b)	EXPORT (c)	NET IMPORT (b) - (c)
New England				
Maine	New Brunswick	2505	57	2448
Massachusetts	New Brunswick	1862	0	1862
	Quebec	102	0	102
New Hampshire	New Brunswick	89	0	89
Vermont	Quebec	1868	0	1868
	Ontario	328	0	328
New England (d)	Quebec	361	265	96
Total New England		7115	322	6793
New York				
	Quebec	3413	998	2415
	Ontario	2331	231	2100
Total New York		5744	1229	4515
Michigan	Ontario	15	5440	-5425
Midwest				
Minnesota	Ontario	0	176	-176
	Manitoba	1122	1122	0
North Dakota	Manitoba	106	396	-290
	Saskatchewan	10	57	-47
Total Midwest		1238	1751	-513
Western				
Montana	Alberta	0	3	-3
	British Columbia	9	0	9
Washington	British Columbia	1835	0	1835
Oregon	British Columbia	875	0	875
California	British Columbia	1597	0	1597
Other (e)	British Columbia	34	0	34
Total Western		4350	3	4347
TOTAL		18462	8745	9717

Notes: a - Sales and purchases only; excludes exchanges.

b - Purchases from Canada.

c - Sales to Canada.

d - Trade with the New England Power Pool - quantities to each state cannot be accurately determined.

e - Includes Idaho, Nevada and Utah.

Financial Regulation

1. Financial Information - Group 1 Oil Pipeline Companies

(a)											
(b)	Cochin		Interprovincial		IPL(NW)		Trans Mountain		Trans-Northern		
1989	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	Total

Revenue Requirement

Return	11.7	38.4	67.8	24.9	42.4	58.1	13.8	21.9	5.0	18.9	140.7
Depreciation	5.2	17.0	37.6	13.8	14.6	20.0	4.7	7.4	2.0	7.5	64.1
Operating & Mtce.	12.3	40.3	124.6	45.7	5.0	6.8	25.3	40.1	15.5	58.5	182.7
Taxes	1.3	4.3	42.4	15.6	11.0	15.1	19.3	30.6	4.0	15.1	78.0
Total	30.5	100.0	272.4	100.0	73.0	100.0	63.1	100.0	26.5	100.0	465.5

Capitalization of Rate Base

Debt	N/A (c)	N/A	380.9	61.1	216.0	70.9	48.2	50.0	17.6	46.3	662.7
Preferred	N/A (c)	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	N/A (c)	N/A	242.8	38.9	88.8	29.1	48.2	50.0	20.4	53.7	400.2
Total	48.4	100.0	623.7 (d)	100.0	304.8	100.0	96.4	100.0	38.0	100.0	1,111.3

Return on Common Equity

Approved	N/A (c)(e)	N/A	32.2	13.25	14.2	16.00	6.7	14.00	2.8	13.75	
Actual	11.7 (f)	24.22	28.0	11.52	14.2	16.00	8.5	17.70	2.9	14.22	

1988	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	Total
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Revenue Requirement

Return	11.3	40.1	70.8	26.1	43.8	56.2	11.1	19.3	4.9	20.5	141.9
Depreciation	5.2	18.4	35.9	13.2	14.8	19.0	3.9	6.8	2.0	8.4	61.8
Operating & Mtce.	10.5	37.2	116.7	43.0	7.0	9.0	24.1	42.0	13.1	54.8	171.4
Taxes	1.2	4.3	48.0	17.7	12.3	15.8	18.3	31.9	3.9	16.3	83.7
Total	28.2	100.0	271.4	100.0	77.9	100.0	57.4	100.0	23.9	100.0	458.8

Capitalization of Rate Base

Debt	N/A (c)	N/A	378.3	62.0	229.6	72.0	38.5	50.0	18.0	48.6	664.4
Preferred	N/A (c)	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	N/A (c)	N/A	231.4	38.0	89.1	28.0	38.5	50.0	19.0	51.4	431.7
Total	53.7	100.0	609.7 (d)	100.0	318.7	100.0	77.0	100.0	37.0	100.0	1,096.1

Return on Common Equity

Approved	N/A (c)(e)	N/A	30.7	13.25	14.3	16.00	5.4	14.00	2.6	13.75	
Actual	11.3 (f)	21.12	31.2	13.48	14.3	16.00	6.9	17.87	2.7	14.19	

a - Based on preliminary estimates.

b - Full names of companies are listed in Companies Under National Energy Board Jurisdiction.

c - Not applicable as company is financed on a joint venture basis.

d - Excludes construction work in progress.

e - Not applicable as company is on a complaint basis.

f - Before interest and taxes.

Financial Regulation

2. Financial Information - Group 1 Gas Pipeline Companies

(a)

(b)	Alberta Natural Gas		Foothills		TQM		TransCanada		Westcoast		Total
1989	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	

Revenue Requirement

Return	2.3	8.3	76.1	44.0	49.4	69.9	321.6	34.3	92.7	33.9	542.1
Depreciation	1.8	6.5	30.6	17.7	13.1	18.5	100.9	10.8	28.7	10.5	175.1
Operating & Mtce.	21.0	75.5	40.6	23.5	6.1	8.6	391.7	41.8	90.0	33.0	549.4
Taxes	2.7	9.7	25.8	14.9	2.1	3.0	124.0	13.2	61.7	22.6	216.3
Total	27.8	100.0	173.1	100.0	70.7	100.0	938.2	100.0	273.1	100.0	1,482.9

Capitalization of Rate Base

Debt	10.8	65.1	414.9	71.1	277.0	75.0	1,438.5	57.4	477.3	60.7	2,618.5
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	314.9	12.6	33.7	4.3	348.6
Common Equity	5.8	34.9	168.5	28.9	92.4	25.0	751.4	30.0	275.1	35.0	1,293.2
Total	16.6	100.0	583.4	100.0	369.4	100.0	2,504.8 (c)	100.0	786.1 (c)	100.0	4,260.3

Return on Common Equity

Approved	N/A (d)	N/A	24.0	14.25	12.7	13.75	103.3	13.75	37.8	13.75	
Actual	1.1	18.41	24.0	14.25	13.7	14.79	109.7	14.60	38.1	13.86	

1988	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	(\$000 000)	(%)	Total
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Revenue Requirement

Return	2.1	8.1	69.9	39.1	51.2	70.6	321.2	35.9	87.2	31.6	531.6
Depreciation	2.2	8.5	35.9	20.1	13.3	18.3	95.5	10.7	30.0	10.9	176.9
Operating & Mtce.	18.3	70.9	42.6	23.8	6.1	8.4	305.1	34.1	87.1	31.6	459.2
Taxes	3.2	12.4	30.5	17.0	1.9	2.6	173.8	19.4	71.7	26.0	281.1
Total	25.8	100.0	178.9	100.0	72.5	100.0	895.6	100.0	276.0	100.0	1,448.8

Capitalization of Rate Base

Debt	10.2	65.0	421.6	72.8	287.0	75.0	1,343.4	55.6	450.7	60.7	2,512.9
Preferred	0.0	0.0	0.0	0.0	0.0	0.0	347.3	14.4	31.9	4.3	379.2
Common Equity	5.5	35.0	157.8	27.2	95.7	25.0	724.6	30.0	259.8	35.0	1,243.4
Total	15.7	100.0	579.4	100.0	382.7	100.0	2,415.3 (c)	100.0	742.4 (c)	100.0	4,135.5

Return on Common Equity

Approved	N/A (d)	N/A	22.5	14.25	13.2	13.75	96.0	13.25	35.7	13.75	
Actual	1.1	19.56	22.5	14.25	14.1	14.75	96.0	13.25	35.9	13.80	

a - Based on preliminary estimates.

b - Full names of companies are listed in Companies Under National Energy Board Jurisdiction.

c - Excludes construction work in progress.

d - Not applicable as company is on a complaint basis.

Senior Staff of the Board¹

Office of the Executive Director

Robin D. Glass, Executive Director

Finance and Administration Branch

Wayne Ganim, Director

Information Technology Branch

Don Emmens, Director

Personnel Branch

Jim Thompson, Director

Planning and Review Branch

Claire M.M. Scott, Director

Energy Regulation Directorate

Peter L. Miles, Director General

Economics Branch

Mark D. Segal, Director

Electric Power Branch

Alex N. Karas, Director

Energy Supply Branch

David Collyer, Director²

Gas and Oil Branch

Ross M. White, Director

Pipeline Regulation Directorate

John S. Klenavic, Director General

Environment Branch³

Peter A. Carr, Director

Financial Regulation Branch³

Henry K. Pau, Director

Pipeline Engineering Branch³

Ed L.M. Gordon, Director

Law Branch

Sandra K. Fraser, General Counsel

Office of the Secretary

Marie Tobin, Secretary⁴

¹ As of 31 December 1989

² Appointed in May 1989

³ Branch names changed effective 1 February 1989

⁴ Appointed in October 1989

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